



The CHEMIST & DRUGGIST

ANNUAL
SPECIAL ISSUE
28 JUNE 1952

*By research the Lilly laboratories
make new contributions to medicine
which the Lilly representative brings
to the attention of the prescriber.
To complete this chain of events
the goodwill and co-operation of the
pharmacist is a vital factor.*

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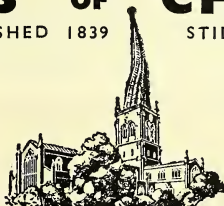
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3 12 50	Ampoules 25 mg.	4/- 12/- 45/-	3/3 9/6 36/-
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100 500 1000	Tablets 1 mg.	3/- 10/6 18/6	2/6 9/- 16/-
25 100 500 1000	Tablets 3 mg.	1/6 4/6 15/- 27/-	1/6 4/- 13/6 24/-
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25 100 500	Tablets 25 mg.	5/- 16/- 72/-	3/9 12/- 54/-
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All the above-mentioned preparations are exempt from Purchase Tax.

Credit Notes for stocks held on July 1st, 1952, will be issued and all claims must be submitted not later than July 8th. *Claims should be made out on postcards and sent to Roche Products Limited, specifying the name of the wholesaler through whom credit is to be passed.*

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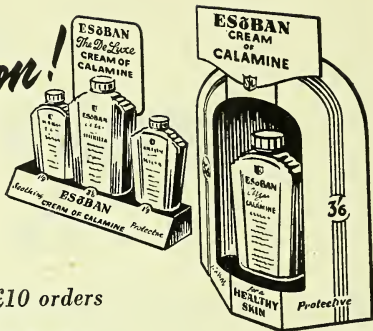
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plastic zinc oxide
adhesive strapping

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GREASEPROOF
WASHABLE
SMOOTH • THIN
STRONG • PLIABLE
NON-FRAYING**

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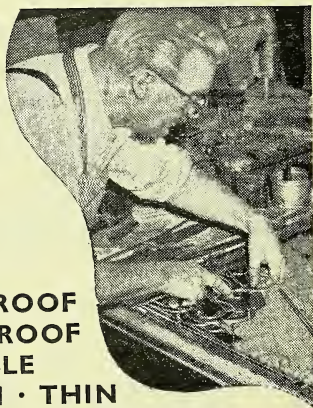
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'NEUTRADONNA' *tablets*

Aluminium sodium silicate with extract of belladonna

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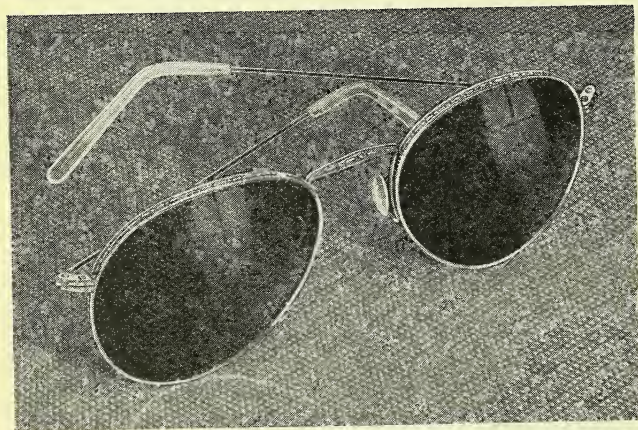
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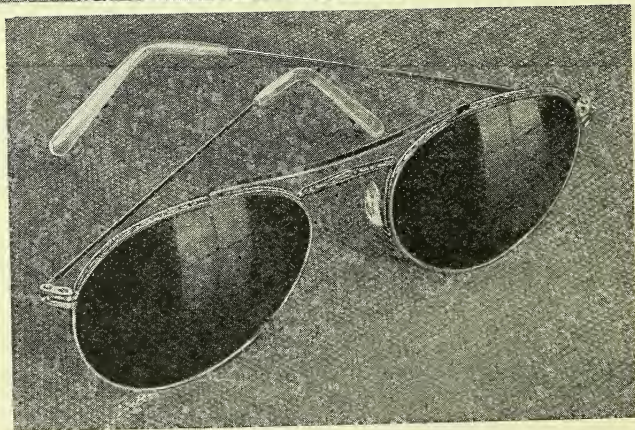
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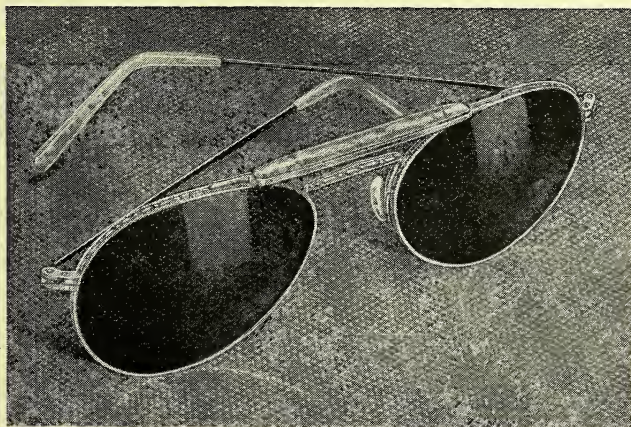
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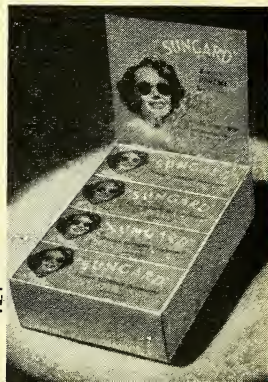
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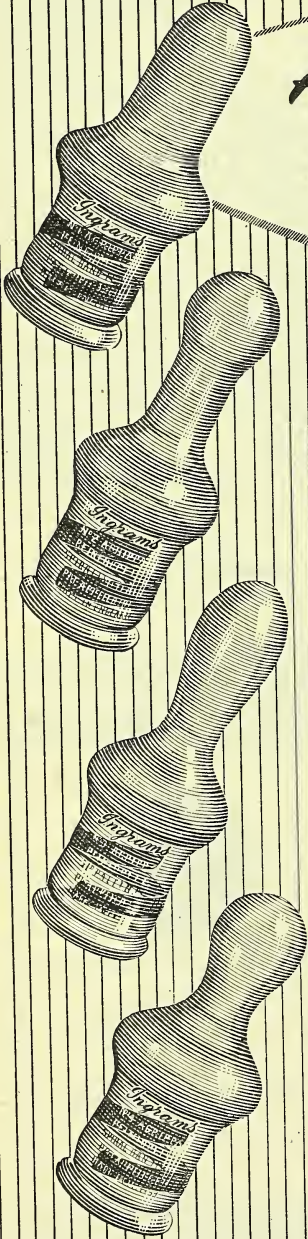
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EXCLUSIVE
SPIRAL TEAT

8d

ENSURES *safe* FEEDING

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ROUSSEL

20 TABLETS

AMENORONE
ROUSSEL

Each tablet contains 10 mg. B.P. Estradiol B.P.

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4 TABLETS DAILY FOR 5 DAYS
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1

SILCOT, ever in the forefront of public demand because of its quality and yet keenly competitive price. Made from cotton-wool, with soft knitted covers and securely-stitched loops. The kind of towel which women ask for time after time. Nationally advertised, Silcot advertisements are read all the time by millions of women in the leading magazines. Brings you regular profits.

2

VENILLA, for those who want a soluble towel for convenience of disposal. A pure cellulose towel, with loops, and a soft knitted cover for a little extra comfort. Pad is of ample thickness. Meet your demands for a soluble towel with Venilla.

3

SILPAK, the recently-announced addition to our range. A cotton-wool towel with soft plastic holder. Very comfortable in wear, safe, economical, and selling at only 2/- per packet retail. Made in Size 1 only. Just the towel which many women are wanting. Silpak will bring you more sales.

SILCOT

COTTON - WOOL TOWELS
In five sizes

VENILLA

SOLUBLE TOWELS
Size 1

SILPAK

COTTON-WOOL TOWELS WITH HOLDER
Size 1

SILCOT Sanitary Belts, all-elastic, adjustable, with metal hooks. In attractive cartons; one dozen in display outer

MACDONALD & SON, LTD., HOPE MILLS, POLLARD STREET, MANCHESTER 4



POTTER'S CATARRH PASTILLES

POTTER'S CATARRH PASTILLES

A REMEDY
FOR
COUGHS, COLDS,
HAY FEVER,
BRONCHITIS

A SURE
PROTECTION
AGAINST
MANY
INFECTIONS

A line known for many years as an excellent seller . . . well advertised year in year out. Attractive display 'dispenser' (illustrated).

P.A.T.A. Retail 1/9 per box
Wholesale 11/- per doz.
plus 3/8 tax.

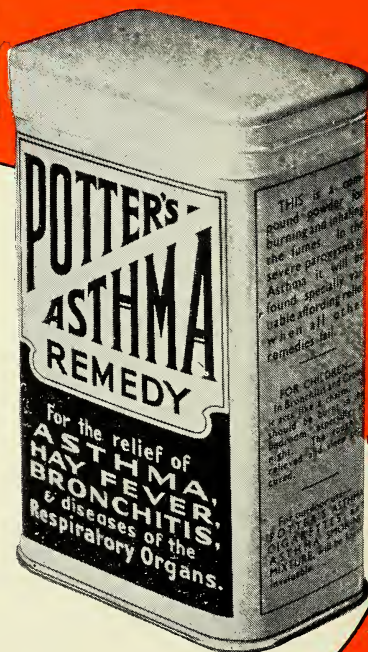


POTTER & CLARKE LIMITED

POTTER'S ASTHMA REMEDY

A famous old Potter & Clarke line
—well advertised all the year round.

P.A.T.A. Retail 3/- per tin (inc. tax)
Wholesale 22/- per doz. plus 7/4 per
doz. tax. (Packed in 1/2 dozens)



POTTER'S SLIPPERY ELM FOOD

A nourishing food of high dietetic value incorporating the ground inner bark of *Ulmus fulva*. A fine body builder for bottle fed infants and an excellent food for the invalid.

TWO SIZES — P.A.T.A.

1-lb. tins

Retail 3/- - 28/- doz.

2-lb. tins

Retail 5/6

- 53/- doz.

No P.T.



POTTER & CLARKE LIMITED



THOMPSON'S DANDELION COFFEE

A real *natural* beverage. Stimulates the whole system. Excellent for dyspeptics.

$\frac{1}{2}$ -lb. Retail 2/10 - 27/- doz.

1-lb. Retail 5/- - 48/- doz.

No Purchase Tax

DANDELION COFFEE ESSENCE

1/4 bottles - 10/9 doz.

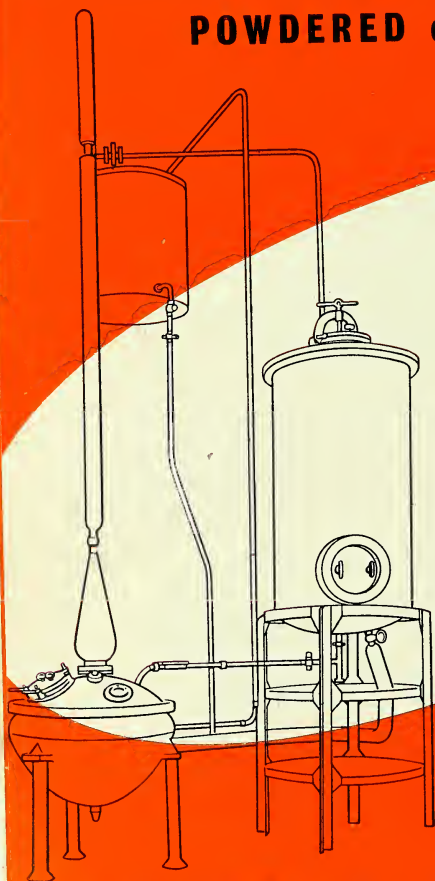
2/6 bottles - 20/3 doz.

No Purchase Tax



POTTER'S Extracts

**LIQUID EXTRACTS, SOLID or SOFT EXTRACTS
of PILULAR CONSISTENCY, DRY EXTRACTS,
POWDERED or GRANULATED.**



*Modern apparatus combined with
scientific knowledge and
experience have enabled us
to produce the finest
extracts available.*

*We shall be pleased to supply ex-
tracts in any desired form, made spe-
cially from the drug, to customers
own requirements.*

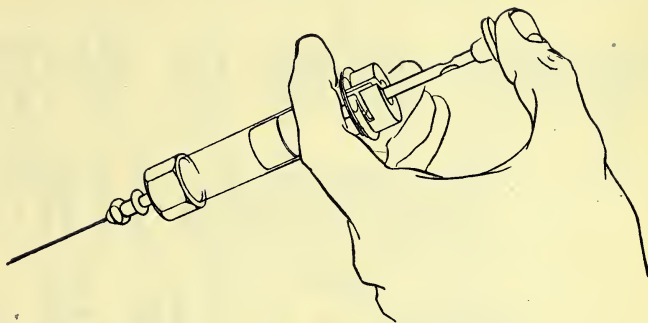
POTTER & CLARKE Ltd

60-64 ARTILLERY LANE, LONDON, E.1
Phone: BISHOPSGATE 4761 Grams: Horehound, Phone, London

77 DANTZIC STREET, MANCHESTER 4
Phone: BLACKFRIARS 8734 Grams: Horehound, Manchester

62 ORBISTON STREET, MOTHERWELL
Phone: MOTHERWELL 1413 Grams: Horehound, Motherwell





For ease of administration in penicillin therapy

'Distaquaine' brand preparations of procaine penicillin G for administration in aqueous suspension are designed to make penicillin therapy more convenient to practitioner and patient. The prolonged effective action of procaine penicillin G makes frequent injections unnecessary. In the majority of infections single daily injections are adequate. 'Distaquaine' brand preparations are easily prepared and administered. There is little or no pain on injection and the equipment is easily cleaned after use.

'DISTAQUAINE' G *vials of 300,000, 900,000 and 3,000,000 units*
brand

'DISTAQUAINE' FORTIFIED *vials of 400,000 and 1,200,000 units*
brand

'DISTAQUAINE' SUSPENSION *vials of 10 ml. (300,000 units per ml.)*
brand

Distributed by ALLEN & HANBURY'S LTD. BRITISH DRUG HOUSES LTD.
BURROUGHS WELLCOME & CO. EVANS MEDICAL SUPPLIES LTD.
IMPERIAL CHEMICAL (PHARMACEUTICALS) LTD.
PHARMACEUTICAL SPECIALITIES (MAY & BAKER) LTD.

★ 'DISTAQUAINE', a trade mark, is the
property of the manufacturers

THE DISTILLERS COMPANY
(BIOCHEMICALS) LIMITED

SPEKE

LIVERPOOL

Pre-war sales in Britain increased TENFOLD in 3½ years!



What better proof that Kleenex* sells on sight than a tenfold sales increase in 3½ years? Kleenex—now made in England by the same exclusive patented process that made it Canada's and America's best-selling tissue.

STOCK and DISPLAY Kleenex NOW!
Kleenex—to be backed by the biggest advertising campaign in the history of tissue handkerchiefs in Britain! *Reg. Trade Mark

The ONLY tissue that "pops up one-at-a-time"

RETAIL PRICE

150 ECONOMY SIZE 1'-
TISSUES (75 pulls)
8½" x 6½"

200 REGULAR SIZE 2'-
TISSUES (100 pulls)
8½" x 9½"

Made in England by Cellucotton Products Ltd., 33 Aylmer Parade, N.2

PLACE YOUR ORDER THROUGH YOUR WHOLESALE TODAY!

QUALITY FIRST

We have been making compressed tablets for over 50 years. Our first consideration is always QUALITY.

Tablets to standard formulæ always in stock.

Our plant is capable of making perfect tablets from $\frac{1}{8}$ " to $2\frac{1}{2}$ " in diameter, and 8 milligrammes to 4 ounces in weight.

**WE SPECIALIZE
IN EXPERIMENTAL WORK**

THOMPSON & CAPPER
WHOLESALE LTD.

**SPEKE HALL ROAD,
LIVERPOOL, 19**

IMPORTANT NEWS FROM J. BIBBY & SONS LIMITED

2 BIG ADVERTISING CAMPAIGNS

Araby TOILET SOAP

A new advertising campaign for ARABY Toilet Soap is now appearing in the 8 leading women's magazines. These magazines, with a total circulation of 8,564,588, are carrying whole and half pages (some in brilliant colour) for the rest of the year. This is an outstanding campaign aimed at the mass market for toilet soap.



CIDAL GERMICIDAL SOAP

CIDAL Germicidal Soap is being advertised in leading magazines, led by the Radio Times with its nation-wide circulation of 8,109,663 and its enormous influence on the housewife's shopping. A large-scale campaign is also appearing in the professional journals read by doctors, dentists, pharmacists, veterinary surgeons, nurses and hospital administrators.



YOU can share in this business. Write for full details of our generous trade terms to:
SALES DEPARTMENT, J. BIBBY & SONS LIMITED, KING EDWARD STREET, LIVERPOOL 3

Prices

of **DEXTROSOL** BRAND products



**DEXTROSOL pure
powdered Glucose**

2/9^D
per 1 lb. packet★

1/6^D
per ½ lb. packet

★New price from 2nd June, 1952

**DEXTROSOL Karo
Glucose Syrup**

2/6^D
in 1 lb. jars

2/3^D
in 1 lb. tins



In 'Dextrosol' Glucose products the conversion of starch into dextrose has been carried to that complete stage which admits of assimilation without digestive effort. Pure dextrose is identical with the blood sugar made by the body and is immediately available as a source of heat and energy. 'Dextrosol' pure powdered Glucose contains no additives of any kind!

'Dextrosol' Karo Glucose Syrup is the ideal addition to the milk of artificially fed infants and a source of immediate energy for all children. It may be spread on rusks or bread and taken with cereals and puddings.

**Remember, you get
the maximum profit from
DEXTROSOL products!**

CORN PRODUCTS CO. LTD.

*A member of the
Brown & Polson Group*

The
KENT-COSBY
(PATENT)

"Allure"

PERFUME HAIRBRUSH



BY APPOINTMENT
BRUSH MAKERS
G.B. KENT & SONS LTD

new!

S.28 POINT OF SALE DISPLAY which demonstrates to your customers the unique Allure features and pack.

It tells your customers you sell the ONLY hairbrush that "Brushes Beauty and Fragrance into your Hair" and is "The Cleanest Brush in the World."



★ A PROFIT POINT—brushes must be seen to be sold and it pays you to display the "Allure" Perfume Hairbrush because it gives you A HIGH CASH RETURN PER UNIT SALE, which to equal you have to make many more sales of other types of brushes or products that do not have the unique "Allure" selling points and features.

CUT OUT AND POST TODAY

Name.....

Address.....

G. B. KENT & SONS LTD.

24 OLD BOND STREET,
LONDON, W.1

Please send me your "Allure" Sales Display Unit S.28, and the following "Allure" brushes with Perfume.

☐

Pink

☐

Blue

☐

Green

☐

Ivory

Retail 30/- each; Perfume 4/6d. Inc. P.T.

Signed.....

NOTE: Order coupon can also be sent to any branch of Messrs. R. Hovenden & Sons Ltd., Osborne, Garrett & Co. Ltd., H. E. Jarvis & Co. Ltd., Watts Bros. (Manchester) Ltd.

Our well-known range of



FACE SQUARES

is now obtainable in

WHITE, COLOURED,

**JACQUARD, and also CHENILLE
BORDERED**

as well as our

FAMOUS BARBERS' TOWEL



UNITED COTTON MILLS L^{TD}.

**71 MOSLEY STREET,
MANCHESTER, 2**

**GROVELAND HOUSE, BOW LANE
LONDON, E.C.4**



There's a very attractive smartness about this new Jeyes' Fluid display outer for the 5 oz. bottle. It will help you get maximum results supported by our current advertising campaigns—at really worth-while margins too!

	Trade Price	Standard Margin	Retail Price
5 oz.	10.6d. per doz.	less 25%	1s. 2d.
10 oz.	15s. 0d. „ „	„ „	1s. 8d.
Quart tin	40s. 6d. „ „	„ „	4s. 6d.
Gallon tin	10s. 3d. each	„ „	13s. 9d.

. . . and these generous extra discounts!

On composite orders including any or all of our popular products—Jeypine, Jeyes' Fluid, Toilet Paper (Flat packs and Rolls), Toilet Soaps, etc., you get

An extra	2½%	discount	on a	£3.0.0.	order
„ „	5%	„ „	„ „	£6.0.0	„
„ „	10%	„ „	„ „	£12.0.0	„

Carriage paid on £3.0.0. order and over. Terms, net monthly account.

UP TO 32½% PROFIT ON

JEYES' PRODUCTS

JEYES' · MILLBROOK · MANOR ROAD · CHIGWELL · ESSEX

ELASTOPLAST

5% BONUS OFFER

**LAST FEW
DAYS!**

An Elastoplast order of £15 or over, sent before 4th July brings you the special 5% display discount; the standard 5% quantity discount; a total profit of 36% on the selling price.



good grooming

Whole families now rise and shine with the sole aid of brushes and toilet goods from Halex.

For the teeth they have their choice of: Halex Rondated Toothbrushes, specially smoothed at the tips to be gentle to gums and protect the enamel of the teeth; Halex Smokers' and Denture Brushes; and the Halex Pure Bristle Toothbrush.

For the hair, they have a fine variety of Halex Hairbrushes for men and women, boys and babies; and of course the beautiful hand-finished Halex Combs in bubble packs. With a Halex Nailbrush and Soap Container for washing, and a Halex Shaving Brush and Shaving Soap Holder to help the men-folk take the trouble out of stubble the family toilet is complete.

Do you stock all the range? They are all stock items in steadily growing demand, and you ought to have your share.

HALEX

★

HALEX LIMITED, HIGHAMS PARK, LONDON, E.4.

*** 50 TABLETS 1/3**

NOW!

**A new
Trial Pack
for**

YESTAMIN DAILY YEAST



Boost *your* sales with this new introductory Yestamin pack. For trial use—and perfect, too, to carry in a handbag or waistcoat pocket. 50 tablets for only 1/3—compare the value of this keenly competitive price!

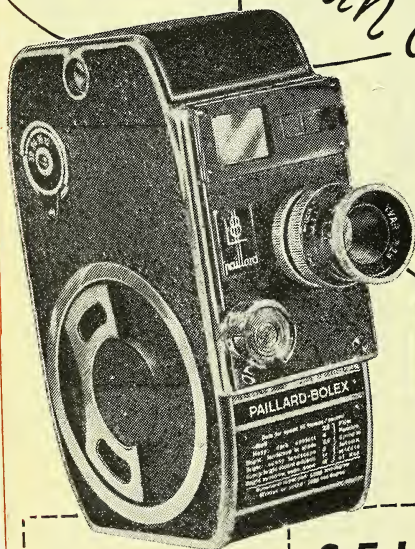
SAME GENEROUS PROFIT MARGIN

Yestamin in the 50-tablet pack is a wise buy. You make the same profit as on the 1/10½ 100-tablet pack. Suggest it as an introduction to new customers—and as a new convenience for established users. Make the most of your Yestamin sales—add *your* recommendation to the weight of Yestamin's extensive continuous national advertising.

*	50 TABLETS ... RETAIL 1/3	TRADE 10/6 PER DOZ.
	100 TABLETS ... RETAIL 1/10½	TRADE 15/9 PER DOZ.
	300 TABLETS ... RETAIL 4/9	TRADE 40/- PER DOZ.

LINK YOUR GOOD NAME

with our good name



BOLEX

the worlds finest ciné camera

WRITE

for full details of trade terms. The finest, most lavish sales literature in the trade, plus the highest standards of precision engineering, makes Bolex the easiest cine camera to sell.



SELL the world's finest cine camera for worthwhile extra income from a valuable new circle of customers. Bolex L8, shown here, takes the low cost 8mm size pictures that are fast out-selling all others and bringing home movie making to a vast new public.

Start selling Bolex this summer and get these money spending home cine enthusiasts coming into your shop, eager for films and accessories for their hobby.

Bolex is a name they trust. Linked with yours it means good business for both of us.

CINEX LTD. Sole U.K. wholesale distributors of Swiss precision-built Bolex cine equipment
9-10 NORTH AUDLEY ST., LONDON, W.1. Tel: GROsvenor 6546

5% EXTRA PROFIT! FROM PLASTERS!

Available only until July 31ST

For the months of June and July, in consideration of your agreeing to display our range of plaster specialities for two weeks, we offer an additional 5% discount on orders over £5

SUGGESTED PARCELS

Parcel No. 1				Parcel No. 2				
£	s.	d.	Doz.		Doz.	£	s.	d.
2	5	0	6	*Carnation Corn Caps	12	4	10	0
19	3		3	9d. Tins Adaptoplast	6	1	18	6
12	10		1	1/6 " "	2	1	5	8
7	6		1	*Carnation Callous Caps	2		15	0
8	6		1	1/- Tins Adaptaprufl	2		17	0
				Waterproof First Aid Dressings				
9	9		1	*Sanoid Boil Treatment	2		19	6
				Adaptoplast Strip Dressing				
12	2		$\frac{1}{2}$	1 yd. x $2\frac{1}{2}$ "	1	1	4	4
4	6		$\frac{1}{4}$	1 yd. x $1\frac{1}{2}$ "	$\frac{1}{2}$		9	0
5	19	6					11	19 0
3	0			Less $2\frac{1}{2}$ % Ordinary Terms less 5%			11	11
5	16	6					11	7 1
5	10			Less 5% Special Discount less 5%			11	4
5	10	8					10	15 9
1	0	9		*Purchase Tax			2	1 6
6	11	5					12	17 3

The above parcels may be varied provided they include not more "Carnation" Corn Caps and not less "Adaptoplast" than the stated quantities, and pro rata for larger orders.

Display material will be sent with all qualifying orders.

This special 5% Discount will be in addition to the normal 2 $\frac{1}{2}$ % on £5 parcels and 5% on parcels of £10 and over.

Controlled distribution through the retail trade

A PRODUCT OF

Cuxson Gerrard & Co. Ltd.
OLDBURY BIRMINGHAM

C. F. GERHARDT LTD

BOTANICAL DRUGS & FINE CHEMICALS

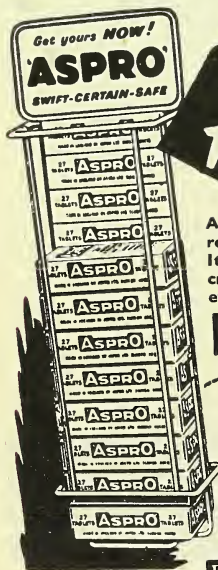
EST. 1864

Our regular list, available on request, includes :

AGAR-AGAR	OPIUM	ALON
CASCARA BK.		CAMPOR
NUX VOMICA		MENTHOL
PAPAIN		PODOPHYLLIN
GUM BENZOIN		POT. BROMATE
ANISEED OIL		SALICIN
EXT. IPECAC. LIQ. B.P.		SANTONIN
BACITRACIN	— RUTIN —	WARFARIN

TEL.: MANSION HOUSE 5095 5 FENCHURCH ST., LONDON, E.C.3

Some displays are *PASSIVE*



**HERE'S ONE
THAT'S ACTIVE!**



Are you using the new handy-to-use 'ASPRO' Silent Salesman? If not, our representative will be pleased to fix one for you when next he calls. It is an **ACTIVE** display in the sense that it is not a mere reminder but actually creates sales. Placed prominently at eye level it catches the attention of every customer.

KEEP IT FILLED-IT MAKES SALES!

Have you noticed the NEW STYLE

'ASPRO' ADVERTISING?
—THE PUBLIC HAVE!

P.A.T.A.

Made by ASPRO LIMITED, Slough, Bucks

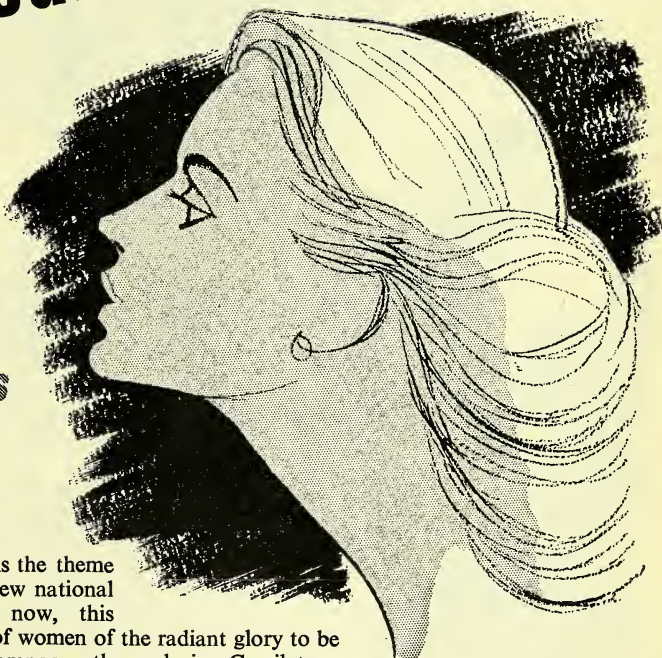
ASPRO

CAMILATONE

feature

Colour-lovely hair★

*to thrill
all
beauty-
conscious
women!*



★ Colour-loveliness is the theme of Camilatone's new national advertising. Appearing now, this campaign tells millions of women of the radiant glory to be gained from Toning Shampoo — the exclusive Camilatone Twin Pack containing Shampoo and Tonrinz Colour Rinse. This is your chance to profit from Colour-lovely Hair.

TONING SHAMPOO (Twin Pack)

Each envelope contains a shampoo, plus a separate Tonrinz. In eight lovely shades there is one to suit each customer. Retail Price is 9d. only. Trade Price 3/8d. per doz., plus 100% P.T.

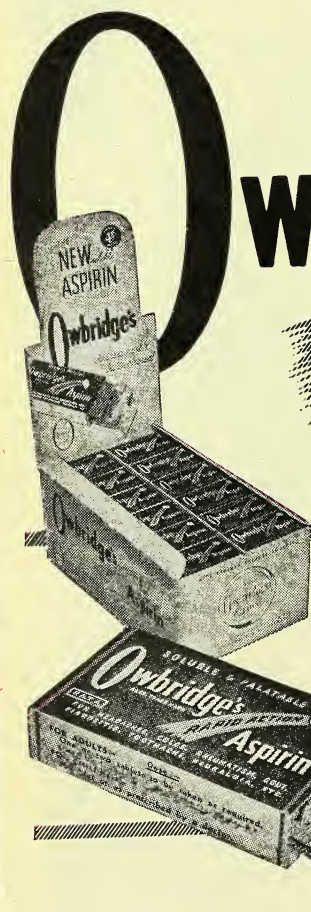
TÖNRINZ—separately—in the same shades retails at 5d. Trade price 2/- per doz., 100% P.T.

Look to your profits! Stock up now!

- ★ RAVEN BLACK
- ★ DARK BROWN
- ★ CHESTNUT
- ★ LIGHT BROWN
(Amber)
- ★ AUBURN
- ★ BLONDE
- ★ GOLDEN RINSE
- ★ BLUE

CAMILATONE LTD., Edgware Road, Welsh Harp, London, N.W.9

Introducing a **New Line**
giving **Big Profit**



OWBRIDGE'S

RAPID ACTION

ASPIRIN

SOLUBLE AND PALATABLE

PROFIT TO WHOLESALERS

12%-20%

PROFIT TO RETAILERS

42%-62%

Write for detailed Price List

W. T. OWBRIDGE LIMITED · OSBORNE STREET · HULL

Carnegies of Welwyn



ALLOIN
ATROPINE
BISMUTH
CHRYSAROBIN
EPHEDRINE
IODIDES
KHELLIN
P.A.S.
PODOPHYLLIN
SANTONIN
STRYCHNINE

*Atropa
Belladonna*

CARNEGIE CHEMICALS (WELWYN) LTD
Manufacturers of Fine Chemicals . . .

WELWYN GARDEN CITY, HERTFORDSHIRE, England

Cables : "Carnechem, Welwyn Garden."

Telephone : Welwyn Garden 506

CARNEGIE

Manufacturers of Fine Chemicals



AMINOPHYLLINE

. . .

CAFFEINE ALKALOID
and its Salts

. . .

HYDANTOIN DERIVATIVES

. . .

PARA-AMINO-SALICYLIC ACID
and its Sodium Salt

. . .

THEOBROMINE ALKALOID
and its Salts

. . .

SYNTHETIC ORGANIC
CHEMICALS

. . .

ETC.

CARNEGIE ORGANICS LTD

WELWYN GARDEN CITY : HERTFORDSHIRE : ENGLAND

TELEGRAMS: CARNEGANIC, WELWYN GARDEN TELEPHONE: WELWYN GARDEN 506 (4 lines)

A 'CARNEGIES OF WELWYN' COMPANY

CARNEGIE

Manufacturing Chemists

‘CARNEBROS BRAND’

AESCULIN	HYOSCINE HYDROBROMIDE
ALOIN	IODIDES
AMIDOPYRIN	KHELLIN
ATROPINE & SALTS	LITHIUM SALTS
BARBITURATES	PHENAZONE
BISMUTH SALTS	PODOPHYLLIN RESIN
BROMISOVALERYLUREA	QUININE & SALTS
CAFFEINE & SALTS	SALICYLATES
CHLORAL HYDRATE	SANTONIN
CHRYSAROBIN	STRYCHNINE & SALTS
CITRATES	SULPHAGUANIDINE
EPHEDRINE & SALTS	THEOBROMINE & SALTS
ESERINE & SALTS	THEOPHYLLINE & SALTS

CARNEGIE BROTHERS (1949) LTD

WELWYN GARDEN CITY : HERTFORDSHIRE : ENGLAND

TELEGRAMS: ‘CARNEBROS’ WELWYN GARDEN TELEPHONE: WELWYN GARDEN 506 (4 lines)

A ‘CARNEGIES OF WELWYN’ COMPANY

Quinine & Salts

ALKALOID

BISULPHATE

DIHYDROCHLORIDE

HYDROBROMIDE

HYDROCHLORIDE

SALICYLATE

SULPHATE

B.P. 1932 & B.P. 1948

TANNATE

. . .

TOTAQUINE



*Cinchona
Ledgeriana*

CARNEGIE QUININE WORKS LTD

Manufacturers of Cinchona Alkaloids . . .

WELWYN GARDEN CITY, Hertfordshire, England

Cables: "Carnechem, Welwyn Garden."

Telephone: Welwyn Garden 506

A 'CARNEGIES OF WELWYN' Company

Since 1768

Founded in the period preceding the French Revolution, the House of Antoine Chiris has, since 1768, upheld the highest standards in the Essential Oil and Aromatic Industries.

For nearly 200 years, its sole concern has been the production of Essential Oils, Floral Absolutes and Aromatic Specialities from materials either grown on Chiris plantations or garnered throughout the world.

**THE INTEGRITY OF CHIRIS
PRODUCTS HAS WITHSTOOD
THE TEST OF TIME**



**GRASSE PARIS NEW YORK
LONDON SAO PAULO**

In each of these great centres of the Soap, Perfumery and Cosmetic industries there is a Chiris establishment and the pooled resources of the whole organisation, in technique and experience, are available in each of these cities. Our creative laboratories are at your disposal and we welcome your enquiries.

ANTOINE CHIRIS, LIMITED.

BRIDGE HOUSE, TADWORTH, SURREY. Sales office, 82 Park Street, London W.1

GRASSE, PARIS, NEW YORK, SAO PAULO.

Dearborn

PREPARATIONS

MERCOLIZED WAX—for nightly skin care

MERCOLIZED FOUNDATION CREAM

MERCOLIZED ASTRINGENT LOTION

STALLAX — the family shampoo

SIPOLITE — a powder depilatory

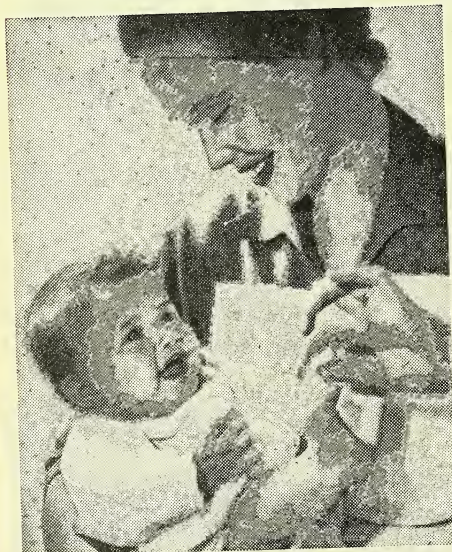
PILENTA SOAP — for the complexion

Supplies obtainable from our distributors:

POTTER & MOORE LIMITED

Lavender House, Seymour
Road, Leyton, London, E.10

This little piggie is bringing you bigger sales!



As you know, you can beckon your customers in with attractive window bills, of the type illustrated here.

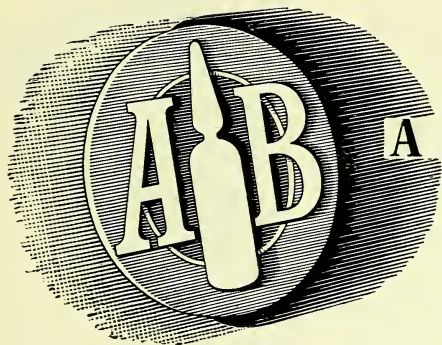
This picture forms a Window Sticker 14" x 9", and also appears in the current advertising for Heinz Strained Foods, which goes into 28 magazines read by over 11,000,000 women.

So, from the magazine page to your counter, "This Little Piggie" is doing a great sales job. The new, attractive "This Little Piggie" display material is available from your Heinz representative. You can use it to remind your customers that the Strained Foods their babies need can be bought from you.

57

HEINZ STRAINED
FOODS

16 varieties: each 7d.



A SYMBOL IS MORE THAN A SIGN

To the psychologist a symbol is not merely a static sign but a dynamic experience. Similarly, to the doctor and pharmacist the symbol "A.B." portrays far more than can be expressed in rational words.

The preference for Insulin A.B. among doctors in all parts of the world is based on trust and experience—on the knowledge that the mark "A.B." signifies all that can be

INSULIN A.B.

desired in quality and performance.

— INSULIN A.B.

Globin Insulin (with zinc) A.B.

Protamine Zinc Insulin A.B.



Joint Licensees and Manufacturers—

ALLEN & HANBURYS LTD. : THE BRITISH DRUG HOUSES LTD.

YOU know they're good!

EVAN WILLIAMS SHAMPOOS are, as ever, a consistent selling line and one that pays for displaying. You know too, it has always been our policy to ensure stockists a square deal and a very generous profit. Keep one of our Display Packs on your counter... they, plus our publicity, will do the selling for you.

Evan Williams
SHAMPOOS



SHOW THEM
AND YOU'LL
SELL THEM

EVAN WILLIAMS CO., LTD. Sales Dept. Aintree Rd., Perivale, Mdx.

We invite your enquiries and orders for

**DRUGS, GALENICALS,
TABLETS, OINTMENTS,
SULPHA DRUGS,
THERMOMETERS,
HYPODERMIC NEEDLES,
SURGICAL PLASTERS,
SURGICAL DRESSINGS,
SUN GLASSES,
FACE FLANNELS,
CHEMISTS' SUNDRIES**

at competitive prices

BIOREX
LABORATORIES LTD.
WHOLESALE AND MANUFACTURING CHEMISTS
51 EXMOUTH STREET, LONDON, E.C.1
Telephone: TERMINUS 9494 and 1431

*Post orders executed promptly
Daily delivery service in the
Greater London Area*

KENNETH REED & CO. LTD.

*Have pleasure in announcing that
they have acquired the business of:—*

J. W. PINDAR & CO.
PHARMACEUTICAL ENGINEERS

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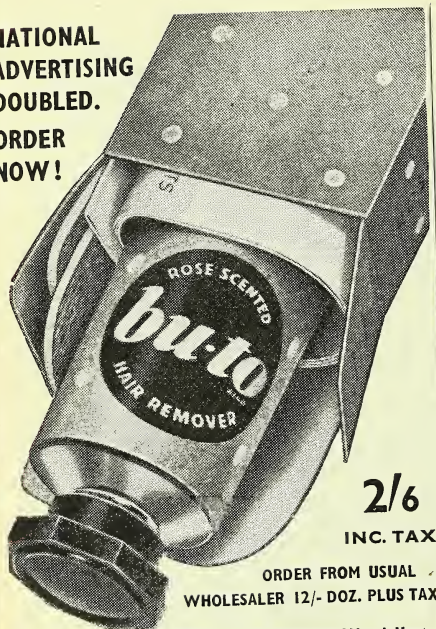
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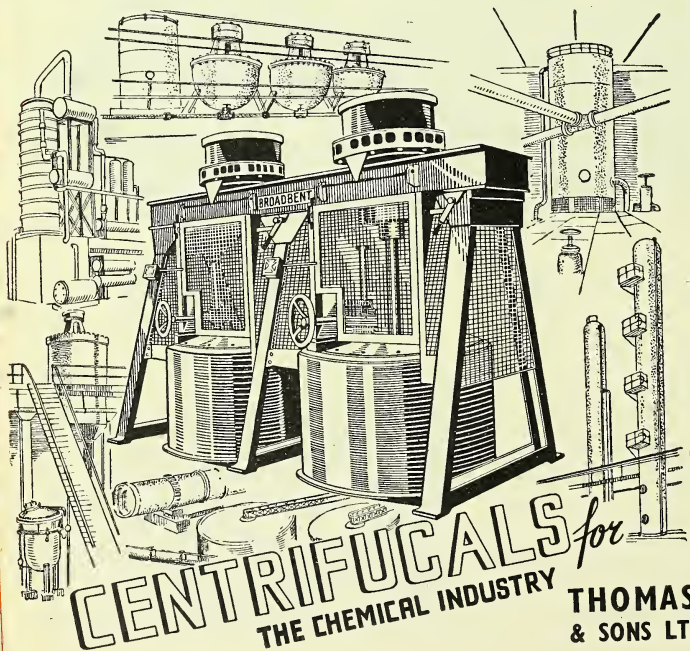
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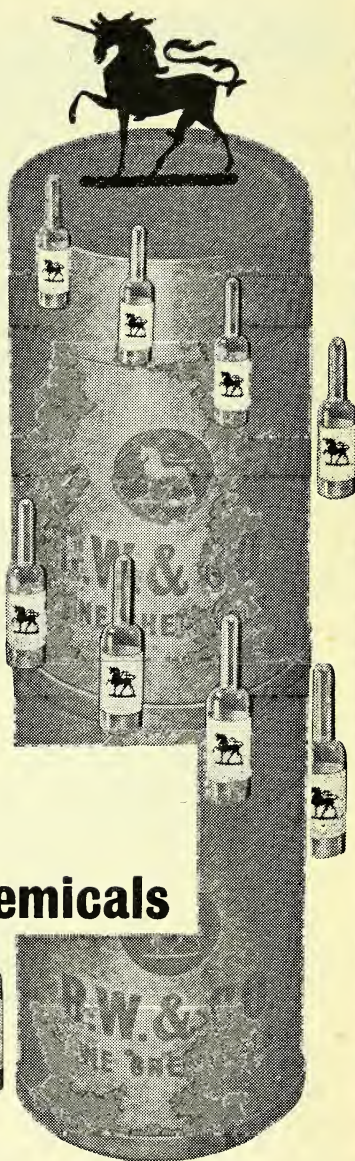
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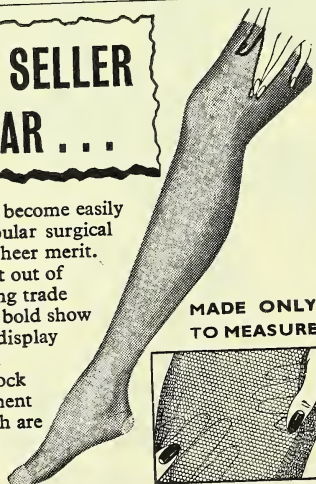


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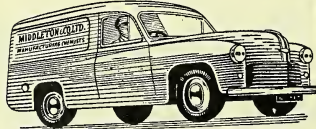
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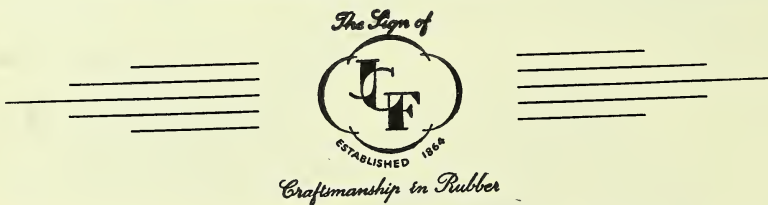
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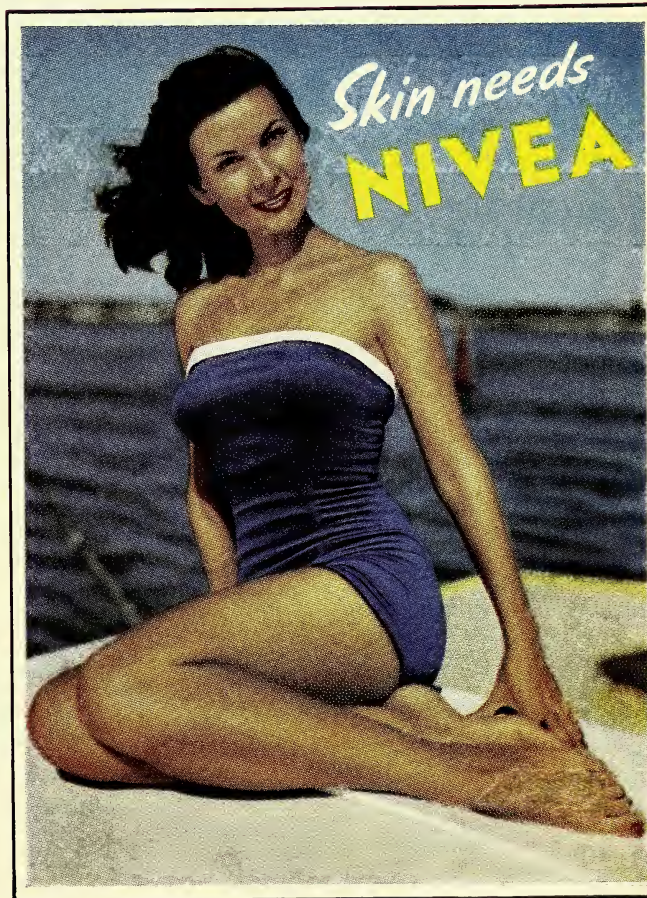
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ATTRACT SUN-LOVERS . . . GIVE NIVEA A GOOD WINDOW

9-purpose NIVEA is a certain summer success. Sun-lovers everywhere will have seen the sales-compelling NIVEA advertising. Use your window and counter to "jog" a memory . . . effect a sale. This lovely showcard is ready to help.

**Buy on
BONUS
TERMS**

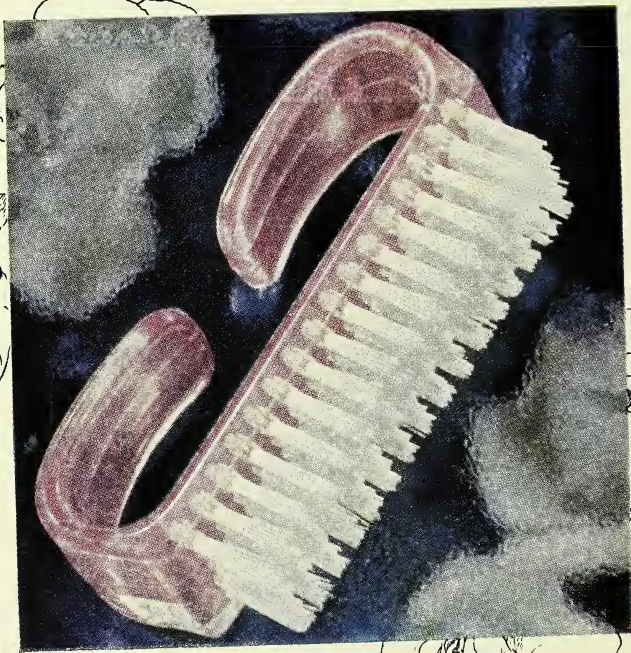
£5 orders (excl. tax) for Nivea products earn a bonus of 20 Popular 2/6d. Size Nivea Creme—increasing your profit to 44%. Each extra 10/- earns another 2 tins.



GNT 155.

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Grippy is the only nailbrush ever advertised substantially and consistently on a national scale. Grippy is beautifully packed and regularly supported by first-class displays. Grippy gives your customer more brush for her money. At the same time, Grippy also gives you a bigger cash margin.

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*a nailbrush
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MADE BY ADDIS LTD.
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that's all the busy Chemist
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WITH THE OPTREX 3
If you **STOCK WELL** and **DISPLAY WELL**
YOU SELL WELL



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- 2 **Optrex Eyebath.** Anatomically designed. Fits dust-free over the Optrex bottle.



- 3 **Optrex Eye Compresses.** The refreshing treatment for the eyes.

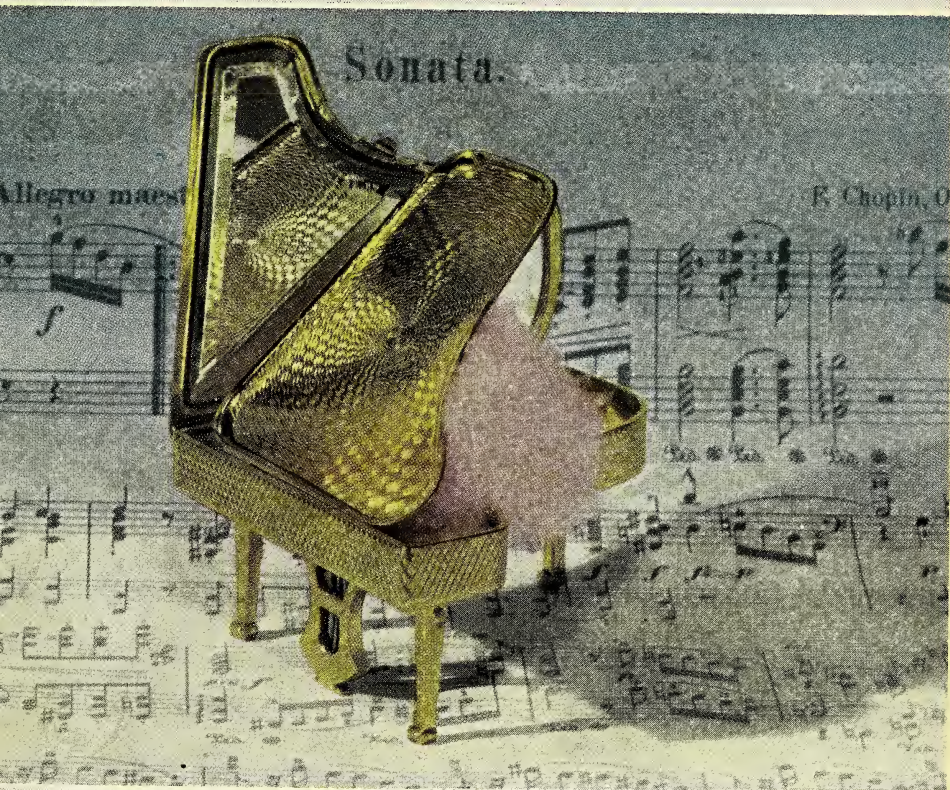
Optrex

**KELDON LIMITED
PERIVALE
MIDDLESEX**

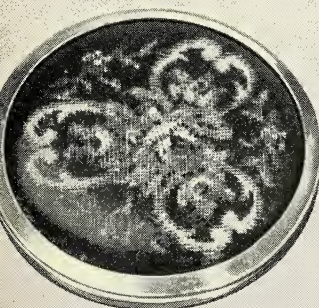


DELIGHTFUL ADDITIONS

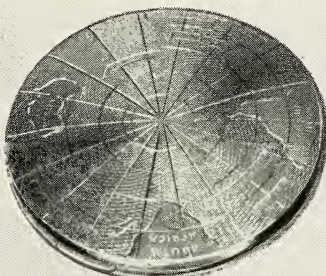
to the *Pygmalion* RANGE



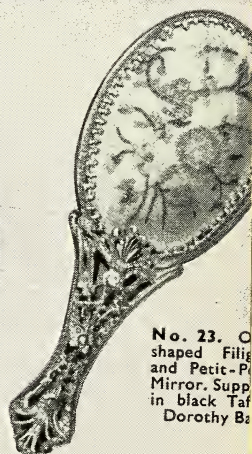
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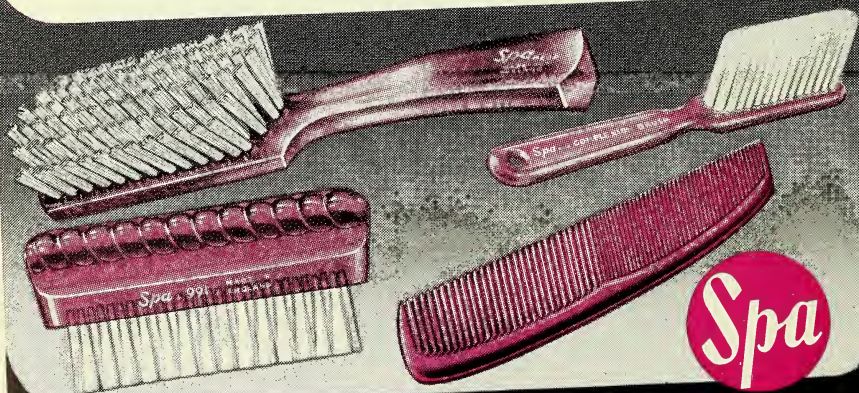
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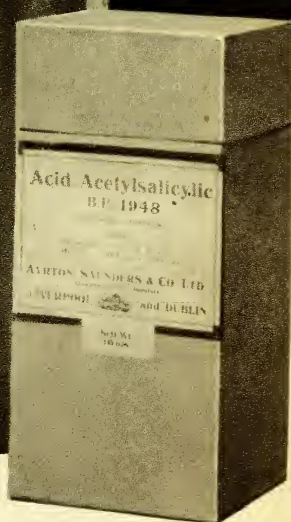
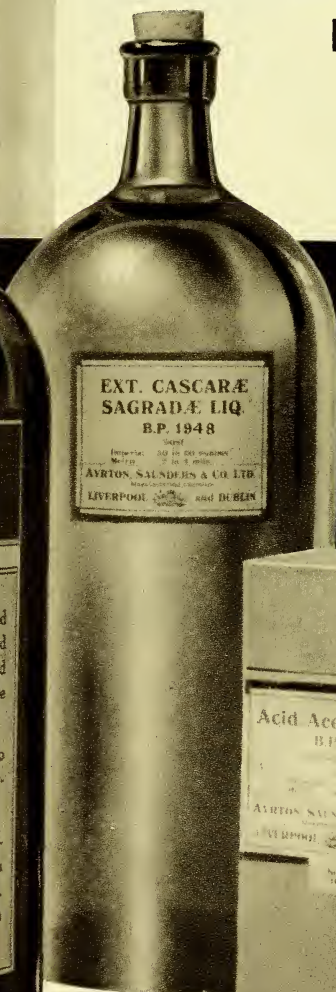
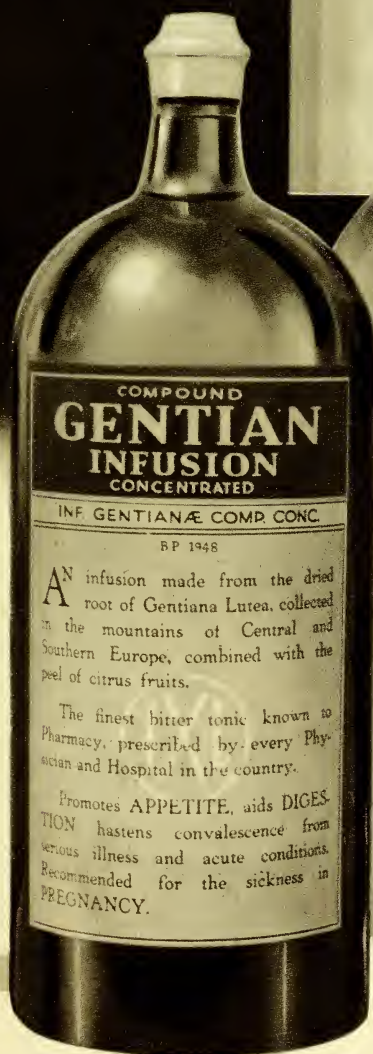
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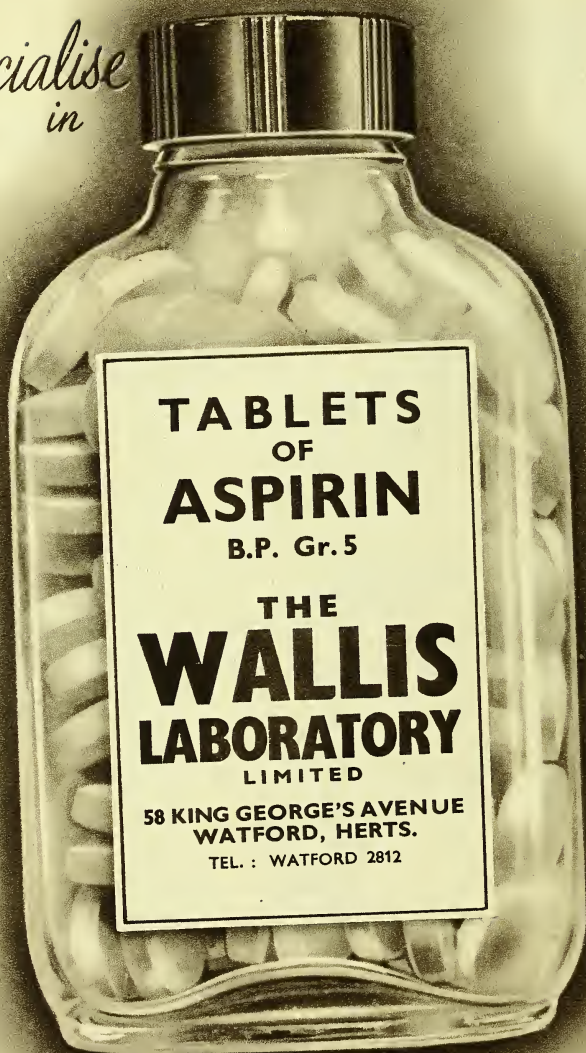
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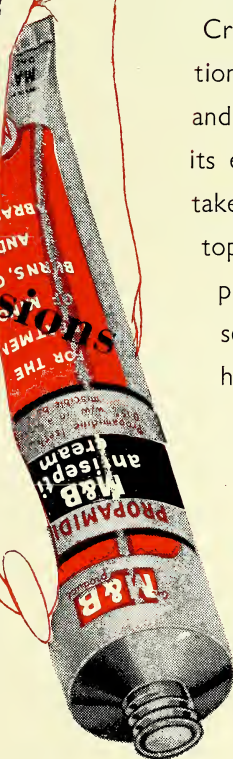
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- ENDURANCE CONSIDERABLY GREATER
- PLentiful SUPPLIES AT ECONOMIC PRICES

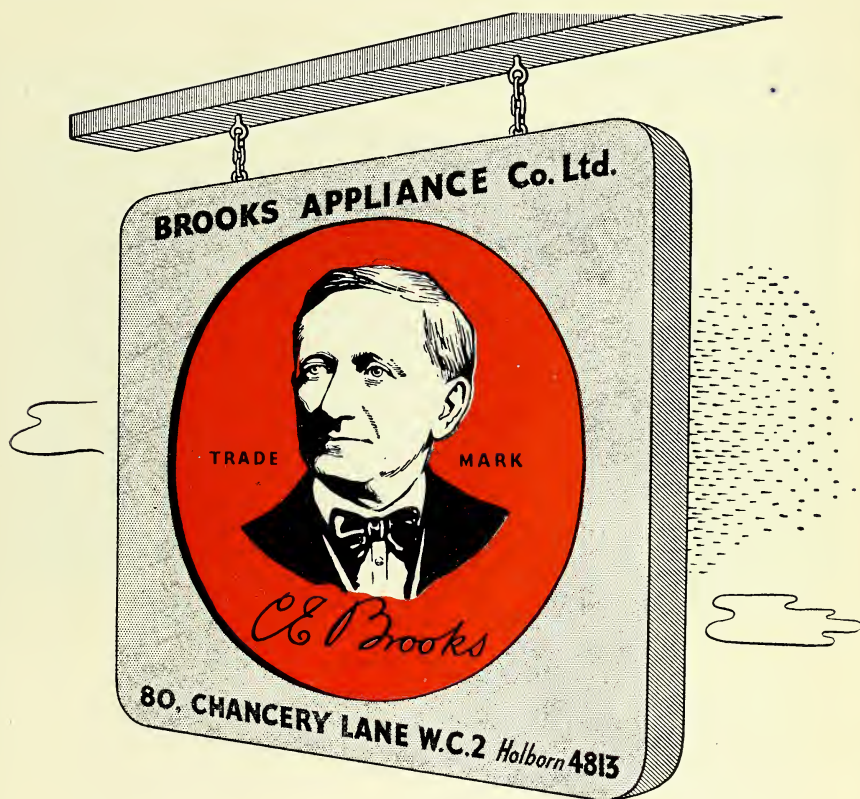
RAYOLAST

BANDAGES * Conform to the specification for rayon-elastic bandages of the Drug Tariff of the Ministry of Health for supply on N.H.S. form E.C.10.

SIZES 2 inch, 2½ inch*, 3 inch*, 4 inch*, 6 inch, 8 inch.

HARKER STAGG LIMITED

EMMOTT STREET, LONDON, E.1.



We first displayed our sign in 1910

FOR 42 YEARS the Brooks Appliance Co., Ltd. has been making comfortable, safe, and made-to-measure BROOKS RUPTURE APPLIANCES . . . constantly improving them over the years.

SALES AGENCIES. There are vacancies for Brooks Sales Agents in some areas in Gt. Britain and overseas. Applications are cordially invited. Our co-operation and terms are worth while investigating.

Today BROOKS is the largest international organisation of its kind

BROOKS APPLIANCE Co. Ltd

Branch Offices and Fitting Establishments :—

LONDON, W.C.2—80 CHANCERY LANE. Phone : HOLborn 4813
 MANCHESTER 1—Hilton Chambers, Hilton St. Phone : Central 5031
 LIVERPOOL 1—66 Rodney Street, Phone : Royal 6548

Appliances supplied
 under the National
 Health Service

The name that guarantees accuracy

The graphic features a large, stylized red 'Z' that serves as a background. The word 'ZEAL' is written in large, white, bold, sans-serif capital letters across the top of the 'Z'. To the right of 'ZEAL', the words 'BRITISH MADE' are written in smaller, white, bold, sans-serif capital letters. Two clinical thermometers are positioned diagonally across the middle of the 'Z'. The word 'CLINICALS' is written in large, white, bold, sans-serif capital letters at the bottom of the 'Z'.

ZEAL **BRITISH
MADE**

CLINICALS

- CLINICAL THERMOMETERS
- HOUSEHOLD THERMOMETERS
- INDUSTRIAL THERMOMETERS

G. H. ZEAL LTD

LOMBARD ROAD, MORDEN ROAD, LONDON, S.W.19

Telephone: LIBERTY 2283-4-5

Cables: "ZEALDOM" LONDON

MAWSON & PROCTOR PHARMACEUTICALS LTD.



THE SPECIALITY SHOWROOM

A comprehensive range of medical specialities is displayed in this showroom which is known throughout the North as "The Ethical Department".

Pharmacists and their assistants appreciate its friendly atmosphere and its specially trained staff.

Mawson's are always at your service for :

**ETHICAL MEDICAL SPECIALITIES,
PROPRIETARIES
DRESSINGS
DRUGS**

MAWSON & PROCTOR PHARMACEUTICALS LTD.

LOW FRIAR LANE • NEWCASTLE-ON-TYNE • Telephone : Newcastle 27074

THE BEST KNOWN AND PROVED REMEDY FOR TROUBLE IN THE HAIR



*Complete
Eradication
Within the
Hour*

Derbac is the one proved remedy for infestation in the hair. It is the fastest seller and fastest in effecting a cure. For serious cases recommend LIQUID DERBAC followed by regular shampooing and combing with DERBAC SOAP AND COMB. Your customers will thank you for prescribing this proved treatment.

FROM CHEMISTS ONLY

DERBAC

SOAP

for slight
infestation.

LIQUID

for more
serious cases.

D.T.I.

PURE PRODUCTS SOAP COMPANY LTD., COLWICK, NOTTINGHAM



Victory V

GUMS & LOZENGES

FRYER & CO. (Nelson) LTD., NELSON LANCs



**'THE
INVISIBLE
GLOVE'**

**Stops dirt from getting
into the skin**

2/6 A TIN (Including P.T.)

ROZALEX

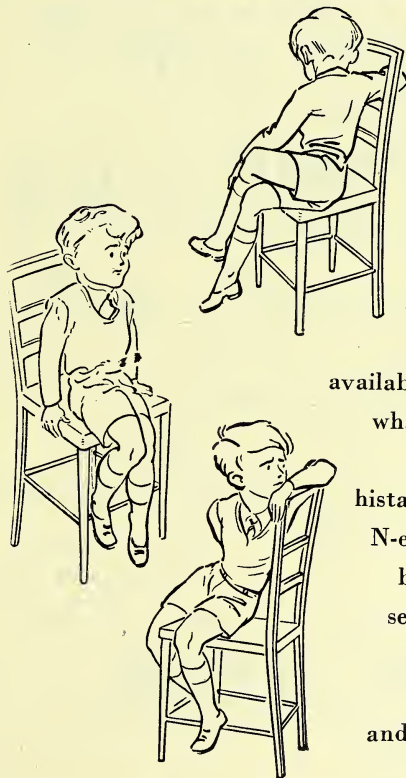
Obtainable from your usual wholesaler

Trade Discount 25%

ROZALEX LTD., 10 NORFOLK STREET, MANCHESTER 2

The problem of

PRURITUS



Pruritus can be particularly difficult in treatment and can be a heavy tax on the physician's time—whether the patient be child or adult. TEEVEX Antipruritic Ointment, however, is a readily available means of allaying the irritation, whatever the origin of the condition.

It contains a powerful anti-histaminic in combination with crotonyl-N-ethyl-o-toluidide, possesses marked bacteriostatic properties and is presented in a non-greasy, non-staining cream base. In urticarial itching, pruritus vulvae, pruritus ani and summer prurigo, TEEVEX affords prompt and lasting relief.

TEEVEX

Antipruritic Ointment

In tubes of 20 gms. Retail 4/-d. Trade 3/-d.
In tubes of 4 oz. Retail 12/6d. Trade 9/4d.
Prescribable on N.H.S. Form E.C.10

A Geigy Medical Announcement

Literature on request

PHARMACEUTICAL LABORATORIES GEIGY LTD

Rhodes, Middleton, MANCHESTER



P. 1, 42.

GALLIC ACID
PURE AND TECHNICAL
PYROGALLIC ACID
RESUBLIMED - PURE - TECHNICAL
EPHEDRINE
QUININE

Manufactured by

J. L. ROSE, LTD.
ABBAY ROAD, BARKING, ESSEX

Telephone—
RIPpleway 2763

Telegrams—
“Gallic, Barking”

Manufacturers of

*(Bulk Supplies
only)*

TANNIC ACID

BP & TECHNICAL

METHYLENE DITANNIN
ACETANNIN
ALBUMEN TANNATE ETC.

CASCARA SAGRADA GRAN

THE BRITISH DYEWOOD CO., LTD.
19 ST. VINCENT PLACE, GLASGOW, C.I.

Generous Steady Intensive
*Profit * Repeat * National*
Margins Business Advertising
make

PHILLIPS' PRODUCTS

Firm Trade Favourites



'MILK OF MAGNESIA'

REGD.

'MIL-PAR'

REGD.

'MILK OF MAGNESIA' TABLETS

REGD.

PHILLIPS' DENTAL MAGNESIA TOOTHPASTE

REGD.

PHILLIPS' MAGNESIA BEAUTY CREAMS

'DANDERINE'

REGD.

'CALIFORNIA SYRUP OF FIGS'

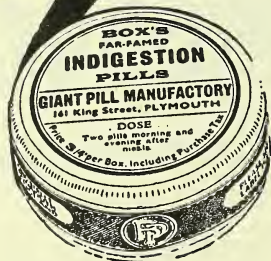
REGD.



The Chas. H. Phillips Chemical Co., Ltd.

179, ACTON VALE, LONDON, W.3.

*The Indigestion Remedy
you CAN recommend!*



CHEMISTS know, from their own experience, that Box's Pills are a good old-fashioned remedy for all minor digestive troubles. For more than sixty years people have been finding relief by taking Box's Pills, and dealers have been making steady profits from their sale

P.A.T.A. Prices (including tax)
1/5, 3/4, 5/5 13/4 and 24/2

BOX'S

INDIGESTION

PILLS

W. H. BOX, 161 KING STREET, PLYMOUTH

The CHEMIST

requiring the best Insurances at the lowest cost can rely on the Policies and services of the Chemists' Mutual.

POLICIES can be arranged for any Chemist in England, Scotland, Wales or Northern Ireland.

ALL NEW POLICIES taken out by September 30th, 1952 will be subject to a bonus deduction of 10% from the first renewal premium.

THE HOUSEHOLDERS' COMPREHENSIVE POLICY issued by the Chemists' Mutual is renewed free of charge every sixth year of insurance provided no claims are made.

**WHY NOT APPLY FOR
PROPOSAL FORMS TO-DAY?
IT WILL PAY YOU**

**THE CHEMISTS' MUTUAL
INSURANCE COMPANY Ltd**

**4 & 5 QUEEN SQUARE
LONDON · W.C.1**

Secretary and Manager:

H. Noble, B.Pharm., Ph.C.

Telephone: TERminus 5118 (2 lines)

Telegrams: Unidefense, Holb, London



Ferrymans
OF SOUTHAMPTON

add more premises — and increase their drug output!

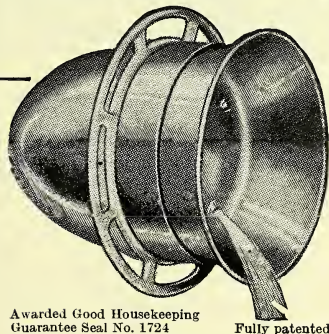
Telephone:
55641
(9 lines)

This additional modern factory is designed to produce increased quantities of galenicals, tablets, ointments, etc. Ferrymans' Service for the South is therefore better equipped than ever for giving prompt attention to orders for drugs.

HERBERT FERRYMAN LTD.
COBDEN BRIDGE • SOUTHAMPTON

Cables and Telegrams:
FERRYMAN,
SOUTHAMPTON.
Code: Bentley's.

DISPLAY AND SELL THE TEACHER BEAKER



Awarded Good Housekeeping
Guarantee Seal No. 1724

Fully patented

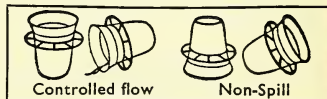
Retailers who display the "Teacher Beaker" effectively find that their sales of this popular line increase by 40% ! Catch mother's eye by displaying the "Teacher Beaker" in *YOUR* shop . . . it's a real favourite with mothers of small children.

**ASK YOUR WHOLESALE FOR THE ATTRACTIVE
COUNTER AND WINDOW DISPLAY CARDS**

The "Teacher Beaker" teaches Baby self-feeding cleanly and easily, without choking, spluttering or spilling. Specially designed to pour at just the right speed and the right angle for drinking, the "Teacher Beaker" has proved a boon to busy mothers.

Retail price of 3/11d. each gives full 50% profit on cost. Wholesale enquiries invited.

Teacher Beaker



Manufacturers:— J. L. CAPLIN, LTD., 178-180 Homerton High Street, London, E.9.
Tel. No. AMHerst 1396

JACKSON'S
FEBRIFUGE



the family medicine

1/7, 3/10, 6/4
 Inc. Purchase Tax

Also other famous specialties:—
 Camomile Ointment
 and
 Drawing Ointment

GEORGE JACKSON & SONS LTD.,
 Brewery St, Harpurhey, Manchester. 9.

J. H. LITTLE & Co. Ltd

Exporters of Chemicals
 Pharmaceutical and Industrial

Agricultural & Chemical Products Ltd.

Importers of Crude Drugs
 Herbs, Seeds, Spices,
 Essential Oils, etc.

51-52 BARBICAN
LONDON • E.C.1

Telephone:
 Monarch 6124 (3 lines)

Telegrams:
 Agrochemia London

GUM TRAGACANTH

GUM KARAYA
 WHOLE AND POWDERED

M. HAMBURGER & SONS
 DIRECT IMPORTERS

Plantation House
 MINCING LANE, LONDON, E.C.3

Telephone: Mansel House 4405 (3 lines)

Dyanese

FADELESS DYES

2½d. STOCKING (except Black)	20/- gross
4d. COLD WATER, CURTAIN	
and Black Stocking Dyes	32/- gross
Order Dyes and Shade Cards from our Agents	
Gt. Britain: W. B. Cartwright Ltd., Rawdon, Leeds	
N. Ireland: T. McMullan & Co., Ltd., 42 Victoria	
St., Belfast. Eire: May Roberts (Ireland) Ltd.,	
Grand Canal Quay, Dublin, C.6.	

SPECIALISTS IN

CARRAGEEN MOSS

ALL GRADES
 INCLUDING POWDER

J. W. CUMMING & SON LTD. 5 Tithebarn St. Liverpool 2
 Phone: Central 7688 Grams: "Carmoss." Liverpool 2

'VERLOG' (Trade Mark)
SURGICAL ELASTIC HOSIERY
 Belts, Trusses, Suspensory Bandages, etc.
ATHLETIC SUPPORTS
 Knee Caps, Anklets, Jockstraps
THOS. GLOYER & SON, LTD., CARLTON, NOTTINGHAM
 Tel.: 58227 (2 lines). Grams: Verlog, Nottingham

MARSHALL & JENKINSON

90 BOWDON ST. SHEFFIELD I. PHONE 27903

Specialists
 Surgical Scissors Household Sidebents
 30 Years Experience Paperhangers Etc

**It PAYS you
to keep it
in the family**

You'll never miss a sale if you can offer every kind of vacuum flask your customers are likely to want. But hold on!... there's no need to carry a huge stock... to worry which will sell — and how many. Keep it in the brilliant all-embracing Freezheat family and your vacuum flasks will sell each other. As you'll see, we're a very well-built bunch, with extra handsome features and a range of prices attractive both to the customer and you. And as a Freezheat specialist, you'll find that stocking standard refills is a simple pleasure as well as a profitable repeat business. Send for illustrated leaflet, price lists and terms to the address below.

... and here IS the Freezheat family!



Freezheat
2 pint
flask.



Freezheat
Twinkup
1 pint
flask.



Freezheat
plastic
1 pint
flask.



Freezheat
plastic
1 pint
jug.



Freezheat
'Georgian'
1 pint jug
(semi-
porce-
lain)



Freezheat
Tartan
1 pint
flask.

FREEZHEAT Vacuum Flasks

THE BRITISH VACUUM FLASK CO. LTD., Lissenden Works, Gordon House Road, London, N.W.5

Bioglan HORMONE-VITAMIN PRODUCTS

IN AMPOULES FOR INJECTION AND
CAPSULES FOR ORAL ADMINISTRATION

Absolutely dependable and unapproachable in activity and potency.

A COMPLETE RANGE OF STANDARD PREPARATIONS AVAILABLE FOR ALL ENDOCRINE CONDITIONS. SPECIAL FORMULÆ AND PRESCRIPTIONS ALSO COMPOUNDED.

Sole Manufacturers of **VITA-E 75 i.u. Gelucaps**, the new and effective treatment for cardiovascular-renal diseases. (Extensively prescribed today under National Health Service). Packed in 90's, 120's and dispensing packs of 500's and 1,000's.

SUPPLIED THROUGH CHEMISTS AND TO MEDICAL PROFESSION ONLY

Distributing Depots established in Australia, Canada, U.S.A., India, Iraq, Iran, Malaya, Hong Kong, China, Jamaica, Portugal, France, Italy, Greece, Cyprus, New Zealand, Switzerland, Turkey, Argentine, Brazil, Uruguay, Bolivia, British Guiana, Cuba, N. Ireland, Eire, South Africa, Germany, Siam, Belgium, Holland, Spain.

THE BIOGLAN LABORATORIES LTD., HERTFORD, HERTS
Phone: CUFFLEY 2137 Telegrams and Cables: "BIOGLAN TOLMERS."

ARROWROOT
CHILLIES
CINNAMON
CLOVES
GINGERS
GUMS
HENNA
LIQUORICE
ORANGE PEEL
QUASSIA
QUILLAI BARK
SARSAPARILLA
SENNA
SQUILLS
TURMERIC
VALERIAN

**EVANS,
GRAY
and
HOOD**
LTD.

61-62 GRACECHURCH ST.
LONDON, E.C.3.

WAREHOUSES -
8-10 PINCHIN ST.
LONDON, E.1.

Telephones
MAN. 9268 (3 lines) 2170, 2301.

Telegrams
SOLAZZI, BILGATE.
LONDON.



Supplies of
BARKS · ROOTS
HERBS
CRUDE DRUGS
SEEDS
SPICES
GELATINES
OLIVE OIL
always available

Your Enquiries for
any of the above
will receive our
Prompt Attention

BULK TRADE ONLY

EUCRYL DENTIFRICES

are widely and consistently advertised

IT PAYS

to stock these
POPULAR LINES
which sell at
POPULAR PRICES

TOOTH POWDER
DENTURE POWDER



EUCRYL



DENTAL PLATE
FIXATIVE

Other easy-to-sell lines:

EUCRYL Tooth Paste
LUCES' Perfumes and Eau de Cologne
LYSOL Disinfectant
FOREST PINE Disinfectant

Write today for Free Eye-catching show-cards and special new display casket.

EUCRYL LTD., Shirley, Southampton

BENGUE'S DISPENSING PACKS

ACIDOTAN	...	...	80 Tablets	NESTOSYL	...	...	1 lb. Jars
			160 Tablets	OPOBYL	...	...	250 Pills
AGOCHOLINE	...	...	500 Tablets	OPOCALCIUM	...	...	500 Tablets
ANACLASINE	...	...	500 Tablets	OPOCALCIUM	...	...	500 Tablets
ANAXERYL	...	...	1 lb. Jars	IRRADIATED	...	...	500 Tablets
BENGUE'S BALSAM	...	...	1 lb. Jars	PASSIORINE	...	...	16 fl. ozs. Bottle
BENGUE'S DRAGEES	...	...	500 Dragees		...	...	80 fl. ozs. Bottle
BENTONYL	...	...	250 Pills	PULMO-BAILLY	...	...	16 fl. ozs. Bottle
BORNOLIN	...	...	1 lb. Jars		...	...	80 fl. ozs. Bottle
CHOLPHYTONE	...	...	500 Dragees	RHINAMID	...	...	8 fl. ozs. Bottle
COROSEDINE	...	...	250 Tablets		...	...	80 fl. ozs. Bottle
			500 Tablets	SEDALBY	...	...	250 Tablets
DESCLERAN	...	...	250 Tablets	TENSEDINE	...	...	250 Tablets
DIUROPHYLLINE	...	...	500 Tablets		...	...	500 Tablets
METANIUM	...	...	1 lb. Jars	VANILDENE	...	...	250 Tablets
NEO-PASSIORINE	...	...	250 Tablets	VELTIS CREAM	...	...	(Unperfumed) 1 lb. Jars
			500 Tablets				(Perfumed) 1 lb. Jars

Please ask for a Trade Price List

BENGUE & CO. LTD., *Manfg. Chemists, Mount Pleasant, ALPERTON, MDX.*

Every day the 'NERVONE' message goes out to customers in your area!

NERVONE

BUILDS UP NERVE POWER

CONSISTENT advertising has created a lively demand for 'NERVONE' the new biochemic formula, and still more extensive advertising is now planned. More and more of your customers will ask for 'NERVONE' and 'repeats' and recommendations flow freely from initial orders. It pays to stock and display 'NERVONE'

**One Shilling and Sevenpence
PROFIT on Each Sale!**

NEW ERA LABORATORIES LTD.
Cecil House, Holborn Viaduct, London



*For Bulk Supplies
insist on*

BEAR Brand HONEY

Available in 7-lb. and 56-lb. tins and in barrels; also supplied in 1/2-lb. and 1-lb. jars.

The cream of the world's honey crops



L. Garvin & Co. Ltd. Isleworth Middx. Tel: HOUnslow 3483

We invite your enquiries for....

PHARMACEUTICAL CHEMICALS
SPECIALLY PURIFIED ANAESTHETIC
CHLOROFORM

ANAESTHETIC ETHER (KEITH'S)
ETHYL CHLORIDE

OPIUM ALKALOIDS

MEDICINAL RESINS, RESINOIDS,
EXTRACT MALE FERN

STRYCHNINE AND BRUCINE

Highest standard of purity



J. F. MACFARLAN & CO. LTD.

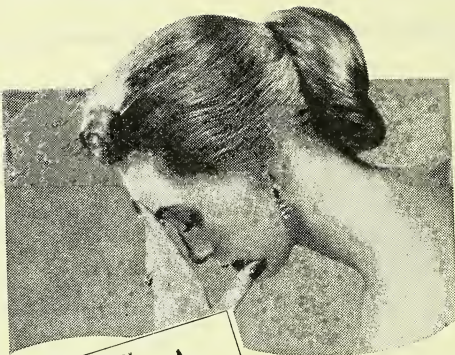
Established 1780

8 Elstree Way,
Boreham Wood, Herts.

109 Abbeyhill,
Edinburgh, 8.



This advertisement is one of a series currently appearing in a large number of National Publications.



kept immaculate with

'WITCH'

HAIR PINS

in BLACK, BLONDE, BROWN or GREY

Made by

THE WHITECROFT PIN MFG. CO. LTD. - WHITECROFT, GLOS. - Tel: W'crol 308/9
London office: 6/7 Queen Street, Cheapside, E.C.4 - Tel: City 5481-2-3



Are YOUR stocks sufficient to meet the demand?



VULFIX SERVICE SHAVING BRUSHES

Obtainable through all wholesalers

Each Brush is a quality article and carries a two-year guarantee. Only pure bristles are used, and these well made brushes are certain to find the popular market.

Retail at 4/6, 6/9, 7/6, 9/6,
12/3, 12/6 and 21/- each



THE BRUSH WITH THE TWO YEARS GUARANTEE

VULFIX ⁰⁰Service ⁰⁰PURE BRISTLE
Shaving BRUSHES

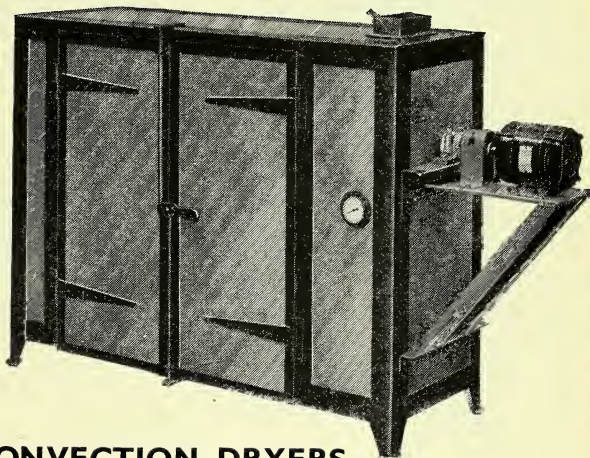
THE PROGRESS SHAVING BRUSH CO. LTD.

Mottram Street, Stockport Phone: STockport 2147 • 49 Leadenhall Street, London, E.C.3 Phone: ROyal 2857

Have you a Drying Problem—

Your Drying Process can be :—

- MORE RAPID
- MORE UNIFORM
and THOROUGH
- MORE PRODUCTIVE
and above all,
- MORE ECONOMICAL



If you Install :—

CONTROLLED CONVECTION DRYERS

—or mixing troubles?



MIXERS AND AGITATORS

For quicker, economical, thorough mixing of your product. Accurate pitch, blade indexing and balance reduce shaft "whip" to minimum and give optimum mixing efficiency when combined with "off centre" mixing.

Portable units up to 2 h.p., with speeds suitable for your particular problem. Shafts and propellers in stainless steel or other materials as required.

SUITABLE VESSELS ALSO SUPPLIED

CONTROLLED CONVECTION DRYING Co. Ltd

CLEVELAND BUILDINGS · 94 MARKET STREET · MANCHESTER 1

Telephone: BLACKFRIARS 0881

SUMNER'S

of
Liverpool and Cardiff

for
Prompt Service
and
Personal Attention

DRUGS • GALENICALS
PROPRIETARIES

Makers of
Vitasac
Regd
THE PERFECT BABY FOOD

R. SUMNER & CO. LTD.

40 • HANOVER STREET • LIVERPOOL

Telephone: ROYal 6644

AND

1 • FITZALAN ROAD • CARDIFF

Telephone: 3147



Chlorophylls



MEDICINAL OIL SOLUBLE WATER SOLUBLE

The Allen Chlorophyll range of products now covers all types of usage. High strength products containing 70% and upwards Sodium Copper Chlorophyllins, and many others, are now in steady production.

Samples will gladly be sent on request.

THE ALLEN CHLOROPHYLL COMPANY LTD

Wharf Road, London, N.1

Telephone: CLERkenwell 1000

*Allen
Chlorophylls*

CALCIUM GLUCONATE
CITRIC ACID
CREAM OF TARTAR
ITACONIC ACID
ROCHELLE SALTS
TARTARIC ACID
LITHIUM SALTS

•

Est. 1870

Kemball, Bishop
& Company Limited

Crown Chemical Works, Three Mill Lane, Bromley-by-Bow, London, E.3.
Telegraphic Address: KEMBALL, LONDON • Telephone: ADVANCE 1234 (7 LINES)



92% say "yes"!

GOYA agents emphatically back new plan for special *Corvette* advertising in Women's Press



Goya introduces a completely new idea in marketing of men's toilet preparations — to advertise *Corvette* in women's magazines.

How would the Trade like the idea? Goya decided to find out, and the result was conclusive. 92% of Goya agents questioned supported this new approach which opens up a new field of sales opportunities.

This special scheme, using such widely read magazines as "Housewife" and "Woman's Journal" is in addition to strong advertising selling *Corvette* to men in the national periodical press and in journals. *Corvette* is the only matched range of men's toilet preparations on the market. It appeals strongly to all those men who appreciate quality in their toilet needs and like to enjoy the same quality in everything they use.

There's *more* profit in *Corvette*

There is an exceptionally good profit on all the products in the *Corvette* range. For example, the Lather Shave gives a profit of 10d. per tube, and the Shaving Bowl 1/6.



Corvette

Quality range of matched
toilet preparations for men

SHAVING STICK	-	-	-	-	-	-	-	-	-	3
SHAVING BOWL	-	-	-	-	-	-	-	-	-	5
LATHER SHAVING CREAM	-	-	-	-	-	-	-	-	-	3
BRUSHLESS SHAVING CREAM	-	-	-	-	-	-	-	-	-	3
HAIR CREAM	-	-	-	-	-	-	-	-	-	3
BRILLIANTINE	-	-	-	-	-	-	-	-	-	4
SOLID BRILLIANTINE	-	-	-	-	-	-	-	-	-	2
TALCUM POWDER	-	-	-	-	-	-	-	-	-	4
AFTER SHAVE LOTION	-	-	-	-	-	-	-	-	-	4

GOYA (MEN'S DIVISION) 161 NEW BOND STREET, LONDON, W.

'Pabyrn' Products



include the following

Natural and synthetic hormones.
Natural and synthetic vitamins.
Proteolysed Liver B.P.C. for oral administration.
Total liver extract for parenteral use.
Heparin B.P., a natural anti-coagulant.
Endocrine substances including Thyroid B.P. in powder, tablets, ampoules and elixir.
Digestive ferments.
Rose Hip Syrup—richest form of natural Vitamin C.

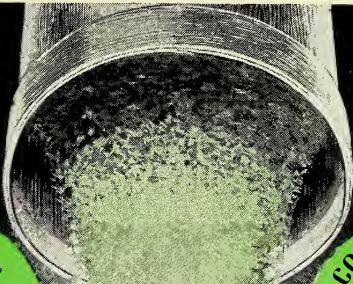
PAINES & BYRNE LIMITED

PABYRN LABORATORIES, GREENFORD, MIDDLESEX


TELEGRAMS : 'GLANDS, GREENFORD'

TELEPHONE : PERIVALE 1143 (5 LINES)







PAINT




CONFECTIONERY




FOODSTUFFS




FIRE EXTINGUISHERS




MEDICINE




RUBBER



AGRICULTURE



PHOTOGRAPHY



**GREEFF
CHEMICALS
FOR
EVERY
TRADE**

R.W. GREEFF & CO. LTD.

12, FINSBURY CIRCUS, LONDON, E.C2 Grams: GREEFF AVE LONDON. Phone: LONDON WALL 5241

WILLOWS FRANCIS

PHARMACEUTICAL PRODUCTS LTD.

Business Established 1751

WHOLESALE & EXPORT DRUGGISTS

Manufacturers of
PHARMACEUTICAL & ETHICAL PREPARATIONS

PILLS, TABLETS
AMPOULES AND
CAPSULES

WILLOW'S
GALENICALS

Made from Chemically and
Physiologically Tested Drugs

WILLOWS FRANCIS

PHARMACEUTICAL PRODUCTS LTD.

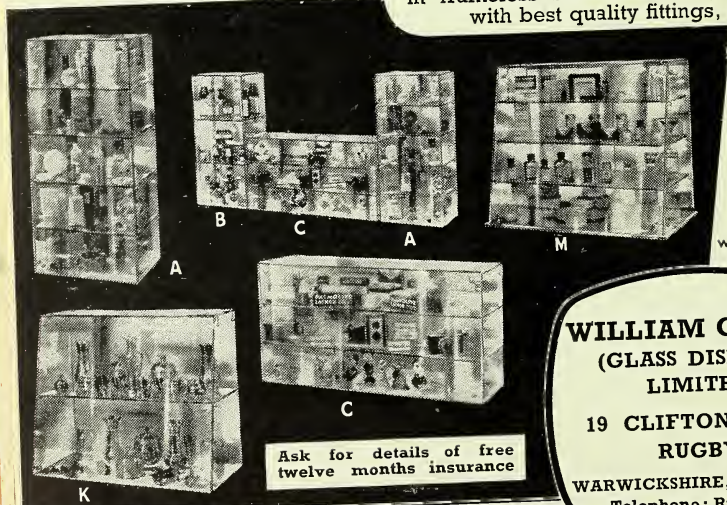
73-75 & 89a Shacklewell Lane, London, E.8

Telephone : CLISSOLD 6361 (6 lines)

Telegrams : FORTY HACK LONDON

Display Sells Goods

in frameless showcases of $\frac{1}{4}$ " polished glass
with best quality fittings, chrome plated.



Mo'	H'th	W'th	D'th	
A	30"	14"	10"	£5.12.9
B	30"	14"	10"	£4.11.9
C	16"	32"	10"	£5.4.3
K	20"	24"	12 1/3"	£4.3.9
M	20"	24"	12.8"	£5.8.9
MA (as illustrated) with base & sliding doors				£9.16.6

WILLIAM GOODE
(GLASS DISPLAY)
LIMITED

19 CLIFTON ROAD
RUGBY

WARWICKSHIRE, ENGLAND
Telephone : Rugby 3100

Ask for details of free
twelve months insurance

Prices include carriage in
England and Wales. Export
inquiries invited.

Delivery usually ex stock.
3 1/2% discount for cash with
order.

Seamed
Seamless

Elastic Net

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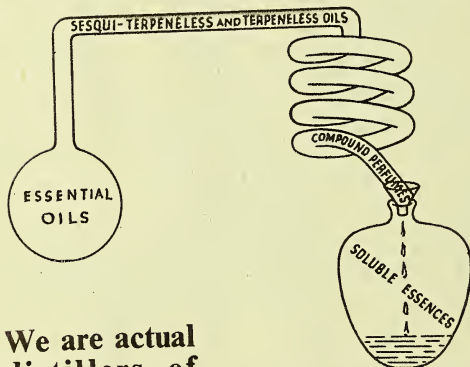
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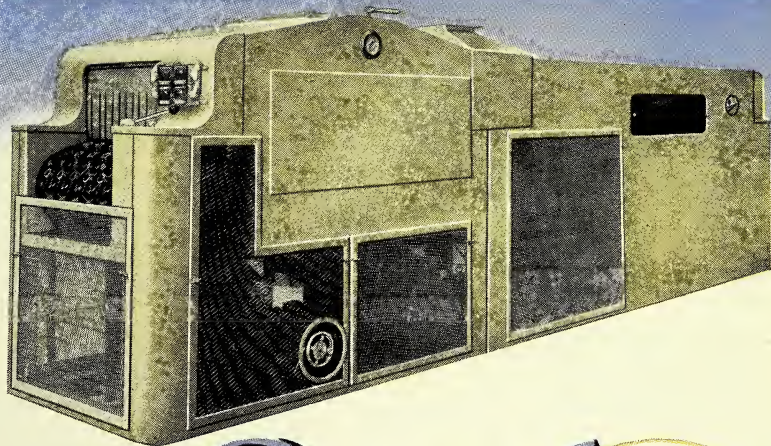
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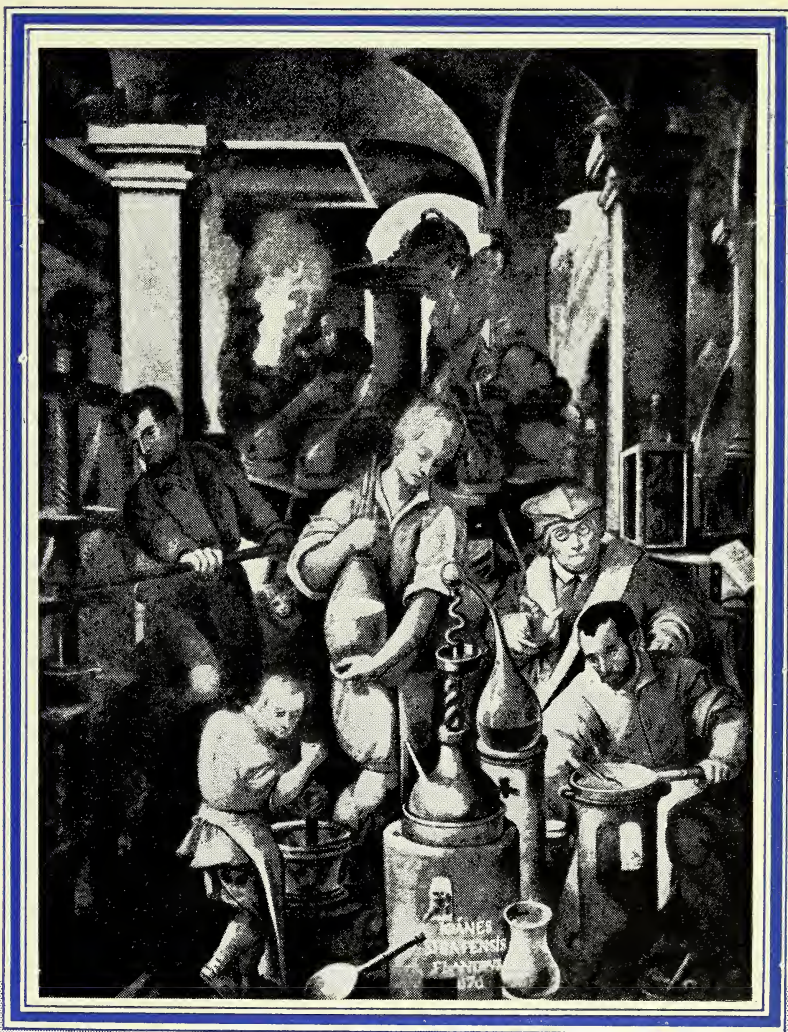
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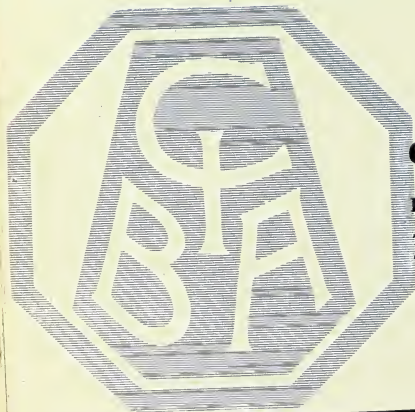
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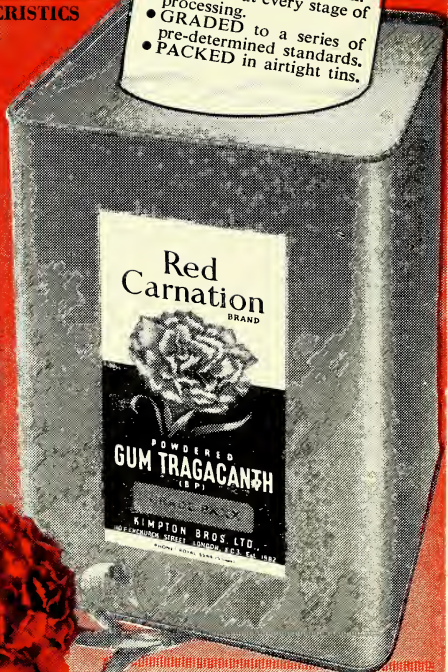
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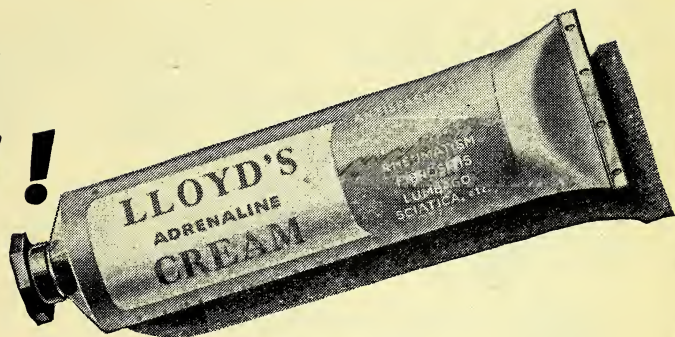
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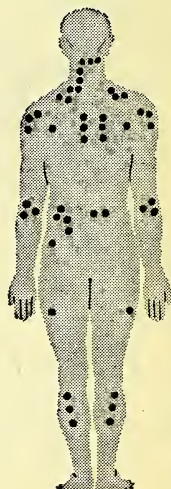
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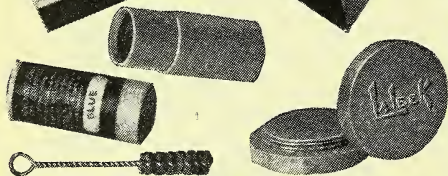
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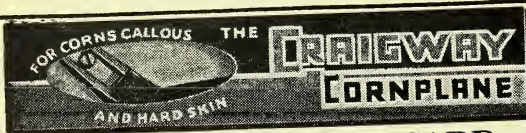
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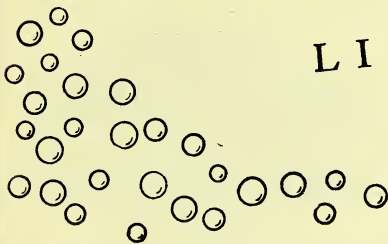
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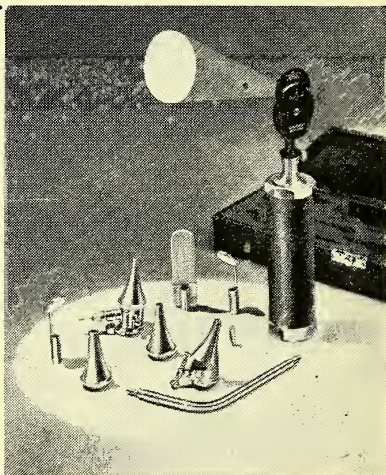
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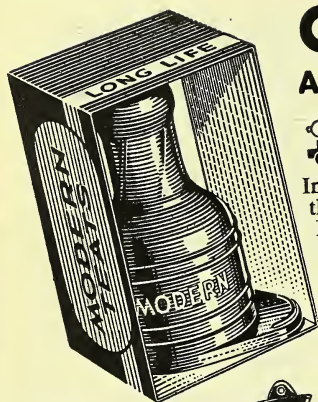
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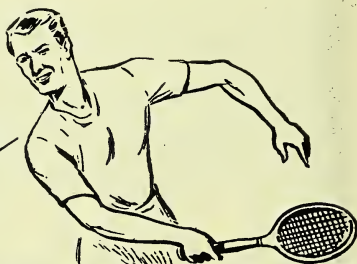
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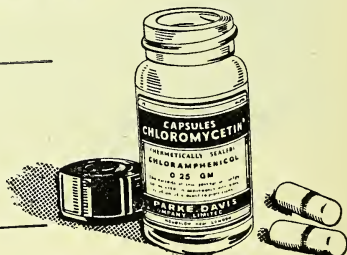
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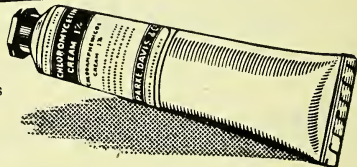
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JUNE 28, 1952

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Volume CLVII

No. 3775

ANNUAL SPECIAL ISSUE

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"We trust that our subscribers who so loyally support us in our endeavours to provide the best drug-trade journal in the world will see that the enterprising firms who make their announcements in our columns reap their share of orders."—From the Summer number of THE CHEMIST AND DRUGGIST of fifty years ago.

NEWS OF THE WEEK

Statutory Committee.—The Statutory Committee of the Pharmaceutical Society will meet at 17 Bloomsbury Square, London, W.C.1, on July 2, at 2.30 p.m., to resume an inquiry adjourned from July 1951 and to consider information "from which it appears that a member of the Society was stated to be suffering from the effect of drink or drugs whilst in charge of a pharmacy."

Dispensers Form a Guild.—A meeting of unqualified dispensers held in London on June 23 decided to form a Guild of Dispensers with the object of fostering "the interests and future welfare of its members on a non-political and non-trade union basis." Dispensers interested are asked to write to the Secretary, The Guild of Dispensers, 41 Connaught Square, London, W.2, stating dispensing experience, etc.

South Midlands Group Formed.—Representatives of the Guildford, Oxford, Reading and Slough Branches of the Pharmaceutical Society met in Reading recently to discuss the Council's proposal for the formation of regional groups. It was unanimously decided to form a South Midlands Regional Group and to hold the first annual conference in Reading. The executive committee as set up comprises two representatives from each branch, with a chairman and secretary, the latter to have no voting powers. The first officers of the group are: *Chairman*, Mr. H. C. Pacey; *Secretary*, Mr. H. Williams, 105 Wokingham Road, Reading, Berks.

Dentists' Formulary.—For the convenience of dentists in the National Health Service a special edition of the National Formulary has been prepared. It is entitled "Dental Practitioners Formulary, 1952," and contains the preparations which are in the third schedule of the National Health Service (General Dental Services) Regulations, 1948, as amended (i.e., drugs which they may prescribe under the Service), some of which are also included in the N.F. A list of approved or official names of substances in the formulary, with the names of proprietary equivalents and lists of metric and imperial equivalents, is given. Copies of the formulary may be obtained from the joint publishers (The British Medical Association, Tavistock Square, London, W.C.1, and the Pharmaceutical Press, 17 Bloomsbury Square, London, W.C.1), price 1s. 6d. each; interleaved copies, 3s. each.

Conference Photographic Competition.

—A photographic competition has been arranged for members of the British Pharmaceutical Conference at Nottingham. The Local Committee will award a prize for the best picture in each of two groups (class A, landscape and general; class B, personal) taken during the week of the Conference (September 1-5). Johnsons of Hendon, Ltd., 335 Hendon Way, London, N.W.4, have donated nine additional prizes. The rules are as follows:—

1. Photographs must have been taken during the period of the Nottingham Conference.
2. Entrants must send with their prints an entry form showing name, address and number of prints in each class.
3. Contact prints or enlargements allowed but minimum size $2\frac{1}{4} \times 3\frac{1}{4}$ in. and maximum 10×8 in. Up to three prints may be submitted in each class but not more than one prize will be awarded to any one competitor in a class.
4. Name and address and class in which entered to be written on back of print (unmounted).
5. Prints accompanied by adequate postage and packing will be returned after the competition.
6. Entries to be posted to Mr. J. B. Gregory, 16 South Road, West Bridgford, Nottingham, to reach him by October 11.

Examination Results.—The following were successful in the June examinations of the Pharmaceutical Society of Northern Ireland: *Final Qualifying*: Brendan M. Anglin, Alex. W. B. Campbell, Margaret E. Davis, Patrick J. Devlin, John V. Fox, Annie M. M. Friel, Cecil Gibson, W. R. M. Horner, John G. Kennedy, James Lord, Michael J. McAteer, Peter J. McCullagh, Michael J. McEvoy, James P. McFadden, Bridget McGlinchey, John K. McGregor, Arthur Magennis, George T. Nelson, Edward O'Hare, Patrick Owens. *Preliminary Scientific*: Robert D. Abernethy, Hugh M. Bailey, Edwin W. Best, Margaret A. Best, Brian P. H. Brooks, John N. Deehan, Patrick J. Donnelly, Mary T. Duffy, Annie Elliott, Patrick O'D. Fox, William T. Goldon, Peter J. Grist, John A. Knox, Thomas Lee, Michael G. Lynch, William A. McElhinney, Ivan D. McKee, John J. McElvey, Leo M. Mason, William R. Meighan, John C. C. Millen, Barbara J. Miller, Samuel McC. Moore, Felix T. O'Kane, Mary B. O'Neill, Ignatius P. O'Reilly, John M. Smyth, Rowland T. Watson, Edward Webb.

Golf.—EDINBURGH CHEMISTS' GOLF CLUB, competition at Gullane recently. Captain's prize: (a tie) J. E. Budge (6) and R. F. Muir (7), 78. Club prizes: 1, J. W. Erasmussen (10), 80; A. Boyle (18), 83; best scratch, N. A. Stephen, 81.

TOPICAL REFLECTIONS

Heard in London and in Country

The latest budget of observations (as it may be called) in the "What Chemists are Thinking" series (pp. 848-49) is allotted to South-east London and Aylesbury pharmacists' opinions on the prescription levy of the National Health Service. There is general though not unanimous agreement that the time has not arrived for making a definite assessment of the success or failure of the scheme. There is also general agreement that old-age pensioners should all be exempted from payment of the fee. Other opinions recur. One is that (as you pointed out on June 7) the Ministry of Health should have given more publicity to the change. Another is that prescribers are co-operating well in the working of the levy; one speaker described them as "exceptionally good." One chemist in South-east London raised an interesting point that I had not seen previously. He remarked that he had dispensed prescriptions of less value than a shilling each, and thought it ethical to do so. I agree. In the first place, it is not always possible for either prescriber or dispenser to estimate with certainty at a glance—and time may not permit a longer examination—the position of a medicament in reference to the dividing line laid down. In the second place, it is undesirable to impress a patient with the idea that something cheap has been prescribed. As was mentioned, the case of a bandage, or something else of familiar price, is different. One matter raised in Aylesbury merits the attention of the Central N.H.S. (Chemist Contractors) Committee: it was stated that the ten-shilling charge on elastic hosiery was almost the whole cost.

French Pharmaceutical Education

Professor M. H. Guillot's lecture on pharmaceutical education in France (pp. 850-51) sets forth a curriculum that should be kept in mind by directors of corresponding studies in Britain. Incidentally, it supplies an answer to the objections of people in this country who complain whenever a proposal to raise educational standards is made. Objections to the proportion of time allotted to any subject are another matter, and may reasonably be stated. But when we look at the long list of studies to be tackled by a French student during a four-year course, we realise that British pharmacists cannot afford to

regard their existing standards of qualification as permanent. One fact probably new to most readers of the lecture is that a student, after passing an examination at the end of the preliminary training in a shop, may "replace a pharmacist in a shop for a few vacation days" or act as a hospital *interne* under supervision. During the four academic years, subjects are taught in sections "from the point of view of applications to pharmacy." Another feature of the studies is botanical "walking parties" under expert leadership. A parallel in England since the days of Professor Robert Bentley is difficult to trace; in Scotland, however, Mr. Rutherford Hill exemplified this good custom till recent years. On p. 854 there is a brief report of another lecture by Professor Guillot, whose second subject was "Radioactivity and Radioisotopes in Clinical Biology." In the lecture the Professor indicated the present limitations of radioisotopes in experimental biology.

Conditions in French Pharmacy

Mr. R. L. M. Morice, who accompanied Professor Guillot on the tour in Britain, gave a lucid summary of the present conditions of pharmaceutical practice in France. The liberation of the country in 1945 rendered the basic laws of September 11, 1941, applicable without foreign interference. The *Ordre des Pharmaciens* and the pharmaceutical syndicates correspond roughly to the Pharmaceutical Society of Great Britain and the National Pharmaceutical Union. But there are considerable differences between the functions of the respective organisations. The *Ordre*, a statutory body, has four sections, each with a central council, and the retail section has twenty-one regional councils. Disciplinary cases are dealt with in the first instance by regional or central councils, with the right of appeal to the National Council of the *Ordre*. The pharmaceutical syndicates consist of (1) a Federal Union of syndicates of retail, manufacturing, wholesale and biochemical pharmacists; (2) syndicates not in the Federal Union, those of hospital and employee pharmacists. Limitation of the number of pharmacies in proportion to urban population is in force. Sales of medicaments, of dressings named in the French Codex and of the medicinal plants of the Codex are restricted to pharmacists.

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CHRISTIE, GEORGE, & CO., LTD. (P.C.).—Capital £3,000. To carry on the business of manufacturers of and dealers in patent medicines, etc. George S. Christie, M.P.S., and Hilda Christie, directors. R.O.: Causeway Laboratories, Long Causeway, Farnworth, Lancs.

A. E. ROBINSON (CHEMIST), LTD. (P.C.).—Capital £9,000. To acquire the business carried on by Alfred E. Robinson, M.P.S., at 36 Market Place, East Dereham. Alfred E. Robinson (managing director), Guy C. Robinson, M.P.S., Catherine H. Martin, Blanche S. Smith, Joan B. Debenham, Janet M. Robinson and Madge P. Robinson, directors.

MEDETHICAL PRODUCTS, LTD. (P.C.).—Capital £1,000. To carry on the business of manufacturers of and dealers in drugs, medicines, medical and surgical appliances, etc. James G. Gordon, M.P.S., and John P. Gordon (directors of Anglo-French Drug Co., Ltd., and Gabail, Ltd.), directors. R.O.: 12 Guilford Street, London, W.C.1.

Company News

BRITISH XYLONITE Co., LTD.—Mr. C. M. Glover has been appointed a director.

PETROCHEMICALS, LTD.—Mr. Godfrey H. Owtram has joined the board and has been appointed managing director.

SANITAS (TRUST), LTD.—Group profit for year ended March 30 was £155,582 (against £161,890) after tax of £239,876 (£221,635). A final ordinary dividend of $7\frac{1}{2}$ per cent. is recommended making 10 per cent. for the year.

DUNCAN, FLOCKHART & Co., LTD.—Arrangements have been made for the share capital to be acquired by T. & H. Smith, Ltd., as from June 30. Certain changes will take place in the constitution of the board with Dr. E. J. Holder as managing director. It is intended that each company will continue to operate as hitherto.

ENERGEN FOODS Co., LTD.—A final dividend of $11\frac{3}{4}$ per cent., making $18\frac{1}{4}$ per cent. on increased capital, is proposed for year ended March 31. Net profit of parent company, £11,154 (against £32,757) and group profit, £9,373 (£32,774), after tax of £6,761 (£21,141). The directors state that the accounts include expenses of a non-recurring nature, principally in connection with the establishment of the new factory at Ashford.

BUSINESS CHANGES

The business of F. Holden, M.P.S., 13 Lime Street, Liverpool, has been converted into a private limited company: F. Holden, Ltd.

MR. ALEXANDER S. STEWART, M.P.S., D.Opt., has acquired the business of the late Mr. John Shand, M.P.S., 15 Randolph Street, Buchhaven, Fife.

MR. B. L. CASLEY, M.P.S., has acquired the business of J. D. Hawley, Ltd., 37 Magdalen Street, Exeter, and will be trading under his own name.

Appointments

BOB MARTIN, LTD., Southport, have appointed Mr. G. W. Orr to represent them in Scotland. Mr. W. L. Lewis has been transferred to an English territory.

MR. JOSEPH REGINALD DALE, B.Sc. (Econ.), M.P.S., Woking, has been appointed an inspector under the Pharmacy Acts. His territory will be in Lancashire and Cheshire.

ORTHO PHARMACEUTICAL, LTD., have appointed Mr. John A. Neville their representative in Warwickshire, Worcestershire, and Staffordshire; and Mr. Jules L. Bracken their representative in Ireland.

THE WEEK IN PARLIAMENT

By a Member of the Press Gallery, House of Commons

MR. B. JANNER asked the Minister of Health on June 19 if he would consider amending the charge for prescriptions so that one shilling only was charged for a set of prescriptions for one patient, and not one shilling for each form as at present. MR. JANNER mentioned cases where a prescription by a doctor whose handwriting is not clear was contained on two forms, with the result that the patient had to pay 2s. for one prescription, but MR. MACLEOD replied that the suggestion was impracticable. It would put a considerable burden on chemists, not only in deciphering the handwriting of doctors, but in the sorting of prescriptions. However, he would continually watch the trend.

Asked by MR. W. D. CHAPMAN what steps he was taking to advise doctors to put as many prescriptions as possible on one form and to counteract the suggestion from chemists that prescriptions should be limited to two per form, the Minister declared that doctors were already aware of their rights and obligations in that connection. In view of the charges, there was obviously no interest in chemists suggesting that prescriptions should be limited, and so far as he was aware chemists had not made any such suggestion.

After MR. MACLEOD had told DR. A. D. D. BROUGHTON that a small allowance would be made to chemists to cover the rare cases in which a patient had no money available and the need for medicine was urgent, DR. BROUGHTON asked: Are we to understand that chemists have the Minister's permission to give medicines free of charge in certain cases? MR. MACLEOD replied: No. It is not anything as formal as that; I have no intention of saying that if the need is desperately urgent and if the person is very genuinely without money, that that person shall be charged. I will not say that. But because that sort of circumstance can arise, we are making a small adjustment in chemists' remuneration.

Prescription Pricing

MR. A. BLENKINSOP asked the Minister of Health on June 19 what additional staff had been recruited to the pricing bureaux during the past six months; and what further staff would be required to deal with the extra work imposed by the levy.

MR. IAIN MACLEOD replied that the net

increase in staff during that time was thirty-six. It was not clear that any extra staff would be required by reason of the charge for prescriptions.

When MR. MACLEOD went on to say that the average time for making complete payment to chemists had remained unchanged, MR. BLENKINSOP asked: Is the Minister not very disappointed at this, in view of the extra small but real recruitment he has mentioned?

MR. MACLEOD replied that he was not the least bit satisfied with the present position, "which has been largely inherited," but said that a larger volume of work was being carried through in the same time, and therefore the efficiency of the bureaux had been increasing relatively all the time. He told MR. H. N. LINSTED that the point had been reached at which a month's prescriptions were being priced in a little under four weeks. Negotiations were going on with chemists concerning the backlog of prescriptions, which he hoped to "take up" as soon as it was clear at what level the demand and the work in the pricing bureaux would settle after the prescription charge had been running for some time.

Chemists' Claim

MR. A. BLENKINSOP asked the Minister of Health on June 19 the estimated cost of the claim for increased remuneration which the National Pharmaceutical Union had lodged, following the introduction of the prescription charges, to compensate for the extra work and heavier expenses of their members. MR. MACLEOD said that no claim had been lodged on those grounds.

Sale of Poisons

The Home Secretary was asked by MR. W. T. WILLIAMS whether he would take steps to ensure that poisons were not sold other than by, or under the supervision of, a registered pharmacist. SIR DAVID MAXWELL FYFE, in a written answer on June 19, said: No. I think it would be unreasonable to require the public to go to a pharmacy every time they need a controlled poison. The Minister told MR. A. W. J. LEWIS on June 19 that the Poisons Board had advised against the introduction of legislation to make it obligatory for manufacturers of Dangerous Drugs, poisons "and the like" to have an antidote printed on the label,

BIRTH

SULKIN.—At St. Mary's Hospital, London, W.2, on June 24, to Peggy, wife of Stewart Sulkin (managing director, J. Sulkin & Sons, Ltd., 120 Holland Park Avenue, London, W.11), a son.

DEATHS

BARNES. — On June 22, Mr. W. F. Barnes (a director of the Acton Pill & Tablet Co., Ltd., Meadow Works, Ash Vale, Surrey), aged eighty-five. Mr. Barnes had been a director of the company for over thirty years, and retired from active interest in the company only a few months ago.

CROSS.—In the Duke of York Home, Bradford, recently, Mr. Robert Arnold Cross, M.P.S., 23 Ennerdale Drive, Bolton, Bradford, aged sixty-seven. Mr. Cross had served for nearly thirty years as pharmaceutical representative on the Bradford Insurance Committee, and had been in business for thirty-five years in Bowling Old Lane, Bradford. He retired five years ago. Mr. Cross leaves a widow and one son (Dr. John Cross, Horton, Bradford).

GREENSMITH.—On June 16, Mr. Charles Cecil Greensmith, M.P.S., High Street, Soham, Cambs, aged seventy-two.

HUNT.—On June 9, Mr. Charles Edward Hunt, M.P.S., Telford, Ruthin Road, Denbigh, aged forty-six.

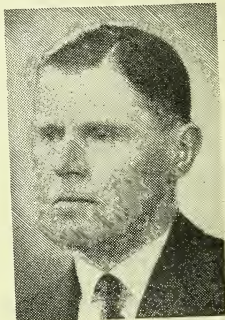
SWAIN. — At his home, 15 Bloomfield Park, Bath, on June 21, after a long illness, Mr. Thomas Swain, M.P.S., aged fifty-five. Mr. Swain, who qualified in 1920, had been in business on his own account at Westbury, Wilts, and later at Cleveland Place, Bath, but had to retire about three years ago owing to ill health. He was a past chairman of the Bath Branches, Pharmaceutical Society and National Pharmaceutical Union (of which branch he was also a past secretary), and was a member of the Bath Executive Council, and despite his illness he had worked until the last as secretary of the Bath Branch of the Pharmaceutical Society, and of the Bath Pharmaceutical Committee. Apprenticed with Davies & John, Bath, he served during the 1914-18 war in the Royal Army Medical Corps on a hospital ship, and saw service in Russia, Italy, and Malta. Before setting up in business on his own account he was in partnership in Ealing. He is survived by his widow and a daughter.

PERSONALITIES

MR. W. TREGENZA, M.P.S., Hoylake, Ches (managing director, Woodfield Cooke, Ltd., chemists, Birkenhead), has been elected president of Hoylake Rotary Club.

MR. JOHN WILLIAM GILES, M.P.S., has been elected mayor of Lincoln. He

is a native of the town, where he served his apprenticeship with the late Mr. J. S. Battle, completing his pharmaceutical education at Nottingham University College after the 1914-18 war. Mr. Giles is now in partnership with his brother, Mr. R. S. Giles, M.P.S., who manages one of their two pharmacies. Elected to the city council in 1946, Mr. Giles is a member of the Executive Council for Lincoln, and of the court of governors of the University of Nottingham.



MR. W. A. POUCHER has been unanimously elected the first honorary member of the Society of Cosmetic Chemists of Great Britain. Mr. Poucher passed the Pharmaceutical Chemist examination in 1913, and is the author of the book "Perfumes, Cosmetics and Soaps."

MR. G. H. OWTRAM, who has been appointed managing director of Petrochemicals, Ltd. (p. 862), has had wide administrative experience in the textile, engineering and chemical industries. He was a founder of New Metals & Chemicals, Ltd., and among other activities is a member of several Federation of British Industries committees.

MR. J. R. DALE, the Pharmaceutical Society's new inspector (see p. 862) qualified in 1935 after study at the Liverpool School of Pharmacy. He has had experience in retail, hospital and manufacturing pharmacy, and during the 1939-45 war he served first as a sergeant dispenser in the Royal Army Medical Corps, later attaining the rank of captain, R.I.A.S.C. He has also served as a paymaster-lieutenant in the Royal Indian Naval Volunteer Reserve.

LEGAL REPORTS

Theft by Trick.—Sentence of one month's imprisonment was passed at the Belfast police court on June 16 on Olivia Joan Blackmore McCaig, a nurse, aged 22, a native of Muckamore, co. Antrim, who pleaded guilty to stealing twelve containers of Duracillin by means of a trick from Mervyn W. Henderson, Ph.C.N.I., chemist, Grosvenor Road, Belfast. It was stated that the woman, posing as Dr. Martin, told Mr. Henderson that she was about to start work as a locum and would forward him the cost of the prescription.

Not Guilty of Conspiracy.—At Liverpool Assizes, on June 18, after a five days' hearing, Dr. Joseph Mansour, 58 Merrilocks Road, Blundellsands, and Eric Wild, M.P.S., Little Gables, Spencer's Lane, Melting (manager director of Symes & Co. (1928), Ltd., Hardman Street, Liverpool), were found not guilty of conspiracy to defraud, and of eleven charges of defrauding the Ministry of Health by means of bogus National Health prescriptions. They were immediately discharged. The case

was brought on a bill of indictment granted to Liverpool police after the Liverpool magistrate, after a four days' hearing in March, had decided that there was no *prima-facie* case against the two defendants, and had dismissed the summonses.

Pharmacy Act Fine.—Before the Potteries stipendiary magistrate recently Lewis's (Staffordshire), Ltd., were fined £20, with £3 3s. costs, on two summonses, brought by the Pharmaceutical Society under the Pharmacy and Poisons Act, 1933. The company pleaded guilty to selling at their Lamb Street, Hanley, store, a bottle of Gee's linctus, containing morphine, when not authorised sellers of poisons, and for selling the preparation in a container not correctly labelled with the address. For Messrs. Lewis's it was said they regretted the offences. The Gee's linctus, a good old-fashioned remedy for coughs and chest ailments, had accidentally been included in the basic stock prepared for buyers, with the result that twelve bottles came into stock at Lamb Street.

AGRANULOCYTOSIS FROM AMIDOPYRINE

A WARNING about possibly fatal risks of agranulocytosis from amidopyrine, and of the danger of doctors' prescribing proprietary preparations not realising that they contained the drug, is made by Discombe ("British Medical Journal," 1952. 1. 1270-73). The author mentions three hospital patients who died after taking excessive doses of Cibalgin or Veramon, when neither the surgeon, the registrar, nor the house officer was aware that those preparations contained amidopyrine. The article lists in all ten proprietary tablets containing amidopyrine that are still being distributed. The list includes, besides the two products mentioned, Allonal Amidophen, Corosedine, Optalidon, Somnosal, Taumasthman, and Veropyron. The manufacturers of Allonal (Roche Products, Ltd.), however, since May 1, have replaced amidopyrine in the preparation by isopropyl phenazone.

The writer points out that the dangers of amidopyrine were known fifteen years ago, when the compound, as an ingredient of a proprietary medicine, caused the deaths of a number of patients. The production of agranulocytosis seems to be an allergic manifestation, requiring initial sensitisation followed even perhaps after

years by re-exposure to the drug.

Amidopyrine in amidopyrine-barbiturate mixtures could be replaced by acetylsalicylic acid, phenacetin, salicylamide, or mixtures of those compounds. One manufacturer at least was now advocating such a mixture in preference to its established amidopyrine mixture, and large scale trials of the two types of mixtures would, in his view, be worth the risk of causing agranulocytosis in participating subjects.

The author suggests administrative reforms including the appointment of a committee of clinical and forensic pathologists to collect for the Poisons Board evidence on drugs causing injurious side-effects, and measures requiring the prescriber to mention amidopyrine by name on any prescription for a preparation containing that drug.

Dudley Hart and colleagues (*ibid.*, pp. 1273-75) report on a case of agranulocytosis in which Novalgin is incriminated. That drug (sodium amidopyrine sulphonate) unlike amidopyrine, is outside Schedule 4 of the Poisons Regulations. In that case rapid improvement in the clinical and hæmatological picture was brought about by the administration of adreno corticotrophic hormone.

TRADE NOTES

Display Bonuses.—Bonuses of 10 per cent. or 12½ per cent. on mixed parcels, according to size, are offered by International Chemical Co., Ltd., Chenies Street, London, W.C.1, on the company's products illustrated on another page.

Self-feeding Beaker.—J. L. Caplin, Ltd., 178 Homerton High Street, London, E.9, introduce and describe on another page their Teacher beaker, which is intended to train a child in self-feeding without choking, spluttering or spilling.

"Piano" Compact.—S. D. Rand, Ltd., 5 Argyll Street, London, W.1, have added to their range of Pygmalion compacts the Sonata, a miniature "grand piano." The new model, with others in the range, is illustrated on another page.

New Small Size.—Macleans, Ltd., Great West Road, Middlesex, have introduced for week-enders (and for families in which each member likes to have his own tube), a new small size of Macleans peroxide tooth-paste (making a range of three sizes in all).

Allowances for Returned Containers.—As from June 23, Container Recovery Service (S.P.D., Ltd., 3 Salisbury Square, London, E.C.4) are, owing to reduced costs of packaging raw materials, reverting to the allowances paid prior to August 1951. Details are given on another page.

Introductory Offer.—To introduce their Ashwood tongue-depressors, Ashwood Timber Industries, Ltd., Ibex House, Minories, London, E.C.3, are supplying a box of 100 free to "any genuine trade house" on application. An announcement appears on another page.

British, French and Italian Sun-glasses.—Alfred Franks & Bartlett Co., Ltd., Audrey House, Ely Place, London, E.C.1, offer the "widest selection ever" of British, French and Italian sun-glasses with Crookes lenses in plastic or metal frames. A metal-framed model is illustrated on another page.

Special Eyedrop Measure.—Britton, Malcolm & Co., Ltd., 38 Southwark Bridge Road, London, S.E.1, have made up and can supply a 1-oz. 480-minim stamped measure, with, in addition to normal markings, 110 and 220-minim markings, to assist in the dispensing of eye drops in accordance with the Executive Council Notice No. 92 of March 1952.

Manufacture in South Africa.—Reimiers (Pty.), Ltd., 166 Sir Lowry Road, Cape Town, South Africa, are now manufacturing and distributing Potter's catarrh pastilles under licence. The area covered includes the Union of South Africa, Northern Rhodesia, Southern Rhodesia and Nyasaland. All orders for goods to be delivered to those territories should in future be sent to Messrs. Reimiers.

Now Available as Dragees.—Hommel's Haematogen & Drug Co., 121A Norwood Road, London, S.E.24, announce that their recently introduced Nyxolan anthelmintic preparation of aluminium 8-hydroxyquinoline sulphate is now available both as syrup and as dragees, each containing 120-mgm. of active substance for the treatment of threadworm infestation. The dragees are issued in packs of sixty and 600.

Deodorising Blanket, Pad and Mask.—Jeffreys, Miller & Co., Ltd., Leyland Mills, Wigan, Lancs, have introduced under the name Denidor, an activated-carbon deodorising blanket pad and mask, the function of which is to remove the unpleasant smells associated with certain diseases and morbid conditions. For bed-ridden patients the Denidor blanket is available; the pad is more suitable for recovering and ambulant patients; and the masks are for use by the doctor and nursing staffs.

Display Material.—With every order for eight Junior or four Senior Culmak shaving brushes, CULMAK, LTD., Woodbridge, Suffolk, are supplying free one Culmak Senior giant shaving brush and other show matter.—RAPIDOL, LTD., 27 Dover Street, London, W.1, illustrate on another page a cut-out showcase that is available for Inecto-rapid hair colourings.—JYES LABORATORIES, LTD., Manor Road, Chigwell, Essex, have produced for the 5-oz. bottle of Jeyes fluid the display outer illustrated; terms and discounts are given on another page.—G. B. KENT & SONS, LTD., 24 Old Bond Street, London, W.1, illustrate on another page their S28 point-of-sale display for the Allure perfume hairbrush; the display piece demonstrates the unique features of the hairbrush.



PHARMACY PLANNING AND EQUIPMENT

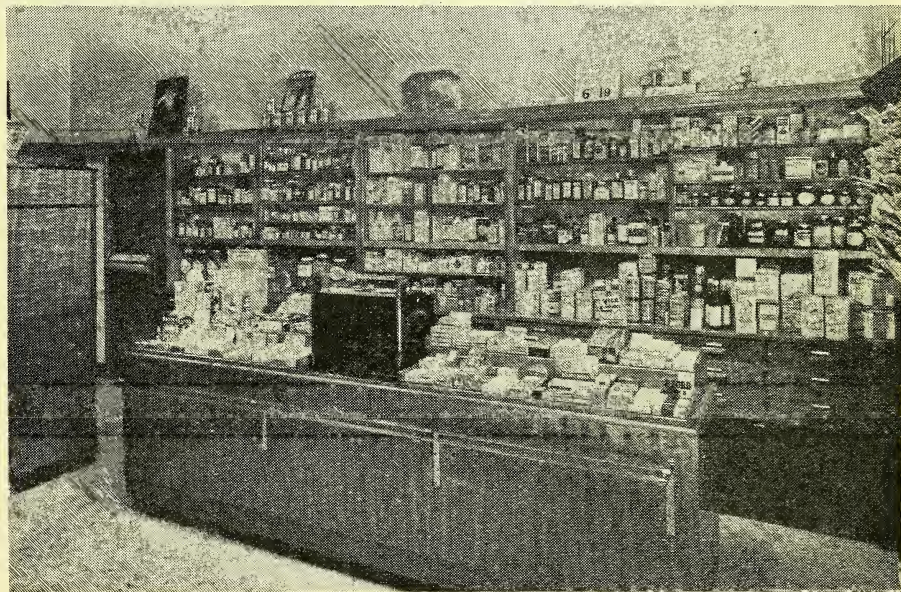
Contemporary design influenced by the visible dispensary and use of new materials

CHANGES in the general characteristics of pharmacy design are being brought about steadily and, indeed, except in one respect, so gradually as almost to escape public notice. The slow passing of dark-stained mahogany, with its heavy mouldings, ornate pediments and scrolls, and projecting plinths is apparently inexorable. That still popular wood is now generally employed in its natural colour, but wide use is also being made of richly-grained or lighter-toned veneers, having flush surfaces, in conjunction with continuous cornices and recessed ebonised plinths.

During the past few years increasing use has been made of synthetic materials in the way of laminated plastics, more particularly for working, serving and display surfaces, and of compressed fibrous

substances for shelves, partitions, and counters. At the present time it is difficult to say how far these "manufactured timbers" are regarded merely as substitutes for natural wood or to what extent they are accepted as improvements on wood, that is as shop-fitting materials in their own right. None of them has been in use long enough as, for example, a working surface in the dispensary to provide opportunity for comparison with teak in durability, or with coverings of long-established reputation, such as linoleum. They vary greatly in price and are not all less costly than wood, but the fact that they are, generally speaking, more easily obtainable, and do not require a licence, is a direct encouragement to their increasing use by shopfitters.

The exception to gradual change is the



1. One counter only is used in Mr. A. M. Bryau's pharmacy at Mirfield. Equipped with glass bins on top, it also has a rack for customers' bags and baskets. A small dispensary (edge of dispensing screen is seen at left) is concealed by a veneer-faced screen, in front of which is a three-tiered display for another department.



2. Two noteworthy features on the opposite side of the shop are the partial recessing of the gas-heater in the wall-fixtures and the display panel combined with the baby-scale platform.

dispensary. This has become of proportionately greater importance with the development of a nationalised health service, and the tendency is not only to expand its size, but also partially to reveal its contents and the activities of its staff. This partial exposure of the dispensary is having a revolutionary influence on pharmacy design, and causing far more attention to be given to the layout and equipment of this hitherto concealed and, perhaps, for that reason, frequently neglected side of the business.

In some instances the service-hatch of the dispensary has become the focal point of the interior design. In others a section of the shop has been designed as a reception area comfortably furnished and supplied with magazines. In several pharmacies there has been a complete removal of the stolid and solid dispensary screen, so that no barrier now exists between the dispensary and the shop. But more often the screen has been metamorphosed from a dual-purpose fixture (with showcases on one side and sink on the other) into an expanse of clear plate-glass from counter

height upwards, with a central opening for the passing in of "scripts" and the passing out of medicines. This whole or partial revelation of the dispensary has encouraged a certain amount of professional showmanship which has not been without its advantages in raising the chemist's status. It can be said quite truthfully that some pharmacies have simultaneously acquired a greater dignity and an element of glamour by making the dispensary a feature of public interest.

Not all chemists have welcomed the change from privacy to publicity for the dispenser. And it is, perhaps, desirable that it should not be universally accepted as a *sine qua non* of progress. There are certain advantages about concealment of the dispenser's activities that may not be altogether counterbalanced by the attractions and admitted benefits of visible operations. In favour of a screen or barrier are

- (1) its freedom from risks of distraction by movements in the shop, signals of recognition from regular customers, or signs of impatience



3. A general view of Agnew Nicholson's pharmacy at Chertsey. Two small windows are concealed behind the fixture on the end wall by showcases that swing open on hinges.

- on the part of those not receiving immediate service, and
- (2) its greater suitability for, and more simplified application in, the small shop, in which incorporation of the open or partly open dispensary

might present certain difficulties.

On the whole the continued application of both methods is good, because it will (a) encourage the initiative of pharmacy designers, (b) provide chemists with better opportunities for planning to suit the shape and size of their premises, and (c) eliminate the inhibiting effect of a fear that the concealed dispensary is, *ipso facto*, out-of-date. For those reasons care has been taken to select one good example of each type from a representative number of modern pharmacies considered for inclusion in this article.

The premises of Mr. A. M. Bryan, at Mirfield, Yorks, are of modern proportions, and dispensing activities are limited to a small space enclosed by a screen at the rear of the shop. The retail area has one counter only and is so compactly equipped



4. The customers' view of the dispensary. Comfortable seating is provided for those awaiting prescriptions.

hat, notwithstanding the inclusion of a wine and spirit business sufficiently active to justify a permanent and prominent display, there is no suggestion of overcrowding. The dispensary has shelving and drawers for accommodating stock on the back wall and along three or four feet of one side wall. Contrary to normal practice when a concealing screen is used, the front of this dividing fixture is not occupied by showcases for displaying pharmaceutical products, but is faced with figured sapele mahogany veneer polished to light, natural colour, relieved by two lines of black beading at the top and a recessed black plinth at the bottom.

Wall-fixtures behind the counter have open-fronted shelving in the upper portion (from counter level upwards), three rows of drawers in the middle section, and cupboards with sliding wood doors below. The whole of the top of the counter is occupied. There is a centrally-placed cash-register flanked by two-tiered, glass-partitioned, glass-fronted bins displaying mixed merchandise (mostly cartoned products) on help-yourself principles. To the counter front is fixed a chromium-plated rack for customers' handbags and baskets.

Recess for Radiator

On the opposite side the wall-fixtures are partially enclosed by glass and partially by wood sliding doors. Noteworthy is the inclusion of a recess for a gas radiator, so that the heating apparatus does not impinge to any appreciable extent upon the circulating area of the floor-space. Immediately behind the window on this side is a stand for baby-weighing scales, with which is incorporated a display panel carrying shelves in staggered formation.

Artificial lighting is provided by fluorescent lamps in three inverted trough-type reflectors. Large squares of rubber in what is described as "harvest" colouring are used on the floor. The arrangement of merchandise along the tops of the fixtures is not perhaps in conformity with the best traditions, but that is possibly a temporary arrangement pending collection of an adequate number of pharmacy jars to accompany the two fine specimens on the dispensary screen. No alterations were made to the shopfront; but the windows were given new bases and risers of laminated plastic and equipped with pelmets of embossed glass carrying coloured lettering. W. Curtis & Sons, Ltd., were the fitters.

Expansion of the premises by absorbing the adjacent domestic quarters has made it possible for a delightful transformation to be brought about in the branch premises at Chertsey, Surrey, of Agnew, Nicholson & Co., whose main shop is in the neighbouring town of Egham. The dispensary, formerly in a room behind the shop, is now seen clearly by customers in all its hygienic splendour on the right-hand side as they enter, and the whole of the shop is within view of the dispensers. These premises might well, in fact, serve as a prototype for those who wish to adopt this new principle of a partially-exposed dispensary.

The retail area occupies the width of two shop sites and has sufficient depth to provide ample facilities for display and freedom of movement for shoppers. The space immediately behind the left half, formerly occupied by the dispensary, is now a storeroom, and the new dispensary, set at right-angles to the shop, runs the depth of the building. The woodwork is all of Japanese oak, a material of pleasant light tone popular for present-day shopfitting. There are three counters, one of the tray-fitted glass tank type and two with central showcases occupying half their height, with recesses at each end. One of these recesses accommodates two wrapping-paper rollers; the other is lined with asbestos sheeting to take a heating radiator.

The Chertsey shop occupies a corner site, and there are two entrances and three large windows on the main frontage, the latter backed by enclosures of reeded glass which, while screening the interior, let in natural daylight. On the return frontage there are two shallow arch-shaped windows, the existence of which is not apparent inside the shop.

Stock-cases cum Window Enclosures

These windows are concealed by two hinged showcases. Divided by a mirrored panel, the stock-cases cum window enclosures form an integral and apparently immovable part of the fixture. On the window side they are faced with a light-toned veneer to form an appropriate setting for the merchandise. There is also a sash-type multi-paned window on the main frontage, behind which a graceful swan-necked carboy is most appropriately installed. This gives the dispensary staff a view of the street sufficiently limited to be non-distracting. Passing shoppers get



5. On the other side of the screen at the Chertsey pharmacy of Agnew Nicholson is a well-planned, hygienic dispensary, with accommodation for two dispensers working simultaneously.

a glimpse of the dispensary on one side, and of the shop on the other side of the dispensary screen which, as will be seen from the illustration, is at right-angles to and, in effect, bisects the window.

The dispensary is well supplied with natural light, as there is also a window at the other end looking on to a conservatory at the back. Tucked away on the left-hand side of the door that links the shop with the dispensary is an aseptic room. This is faced with a sliding door having a clear glass panel on the right-hand side (with a fanlight over the two) and cupboards for "broken" proprietaries on the other. Stock is duplicated, so that two dispensers can work simultaneously on respective sides of the sink.

Beneath the sink (of stainless-steel, made in one piece with two draining surfaces) is a rubbish-bin that pulls out like a drawer, an inward-swinging flap, hinged at the top, serving as a screen for the contents while permitting easy ingress for litter. The working surfaces in the dispensary are of laminated plastic. Immediately behind the sink are two recesses: one fitted with racks for measuring glassware, and the other accommodating a

water heater of the instantaneous kind.

On the right-hand side of the shop, near the dispensary screen, are chromium-plated tubular chairs and a table carrying a collection of current periodicals for the use of people awaiting medicines. There is a bench behind the partition on the dispensary side, with cupboards beneath, and the corresponding area on the shop side is faced with veneer to counter level. Between this lower portion and the clear, plate glass above is a line of showcases, forming in effect a dado of display. Access to these cases is provided by sliding doors at the back.

Shop and dispensary are both lighted by fluorescent lamps (twin "warm-white" in the former and single "daylight" in the latter) with diffusing enclosures of reeded translucent plastic. The floor covering throughout is of thermoplastic tiles in alternating squares of green and white marbled colourings. Tiles of this kind have only recently come into production in this country. They are made of a mixture of asbestos fibre, crushed mineral aggregates known as "fillers," and pigments which are fast to light, bound together with synthetic resins.



Price's of Clare Street, Dublin.



Hamilton Long's O'Connell Street pharmacy.

TRENDS IN IRISH PHARMACY DESIGN

THE design and practice of pharmacy in Ireland have moved ahead from the days of the early nineteenth century when the apothecaries of Dublin and Cork displayed jars of leeches on their shelves, and apprentices spent laborious days making tinctures and infusions. Dublin provides many illuminating examples of the change in pharmaceutical design that has taken place over the past century.

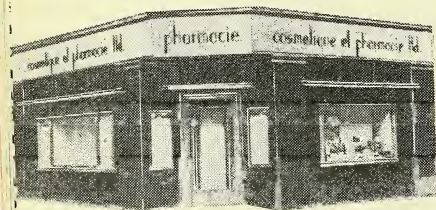
Last of the old "strictly professional" pharmacies, Price's of Clare Street has in its sober and classical façade of black, gold and maroon all the character, dignity and sedateness of a Victorian old lady. Its window displays nothing but the traditional specie jars and carboys. Its original owner, Robert Price, an apothecary, established a business on the opposite side of Clare Street in 1868. He moved to the present site and carried on business there without ever becoming a pharmacist under the Act of 1875, passed seven years after he opened shop. His successor, John I Bernard, was vice-president of the Pharmaceutical Society of Ireland, 1900-02. After his death the concern became a limited company, but

even today Price's Medical Hall has never employed a lady assistant, displays no cosmetics, stocks no photographic goods, and relies entirely on its old-time reputation as one of the leading prescription pharmacies. It is the only pharmacy in the city that has a lamp-post all to itself, with panels carrying the word "Chemist" and the pestle and mortar sign illuminated by gas!

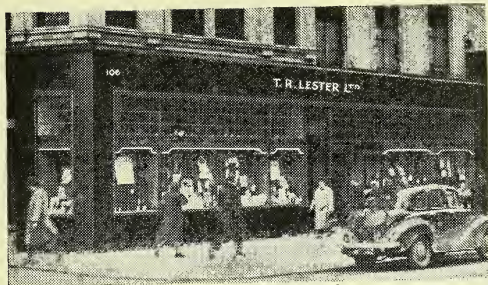
The pharmacy of Hamilton Long & Co., Ltd., O'Connell Street, embodies a move forward to something more in keeping with modern times. The marble and bronze exterior makes some concession to modernity yet retains much of the professional dignity of the calling. Another blend of the professional with a slightly modern visage is the pharmacy of J. S. Evans & Co., Ltd., St. Stephen's Green, owned by Mr. Phil Fahey. The exceptionally high standard of window-dressing at this pharmacy has brought it many Irish Week awards.

From these "middle-of-the-road" pharmacies one may wander into Grafton Street to find examples of the modern trend at its full. In the chromium-plate and shining black vitriolite vogue of today a most attractive frontage is that of Mr. David Wolfe at number 35. Within the limited space available the former president of the Irish Drug Association has achieved great things in display. There is a compactness and harmony about the frontage and, within, something entirely new in Irish pharmacy design—a compounding department open to public view.

Emphasis on cosmetics, with an added French flavour, is found in another of



Cosmetique et Pharmacie, Ltd., Dublin.

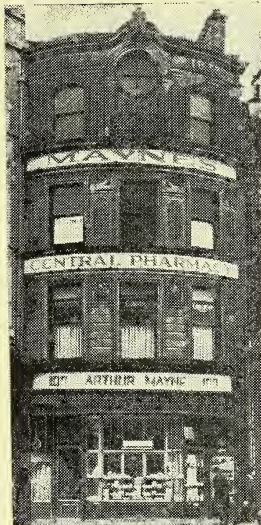


The pharmacy of T. R. Lester, Ltd., at Patrick's Street Cork

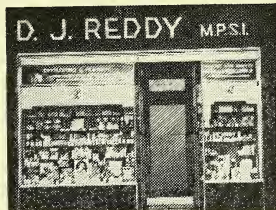
**TRADITIONAL AND MODERN
PHARMACIES IN EIRE'S
PROVINCES AND CAPITAL.**



MacSweeney's corner pharmacy at Cork.



Tradition well maintained
at Mayne's, Cork.



A Glasnevin front.

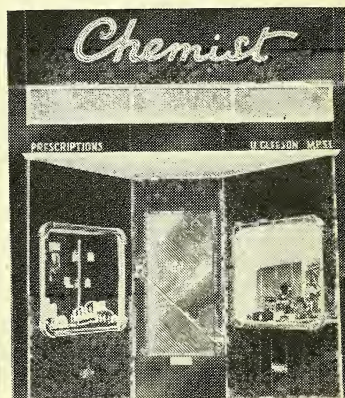
To judge by the most recent examples, there has been a swing away from the garish and modernistic to styles more classical and dignified. Older symbols of the craft may have become "dated" in the era of antibiotics, but professional character can still be shown in shop-fronts.



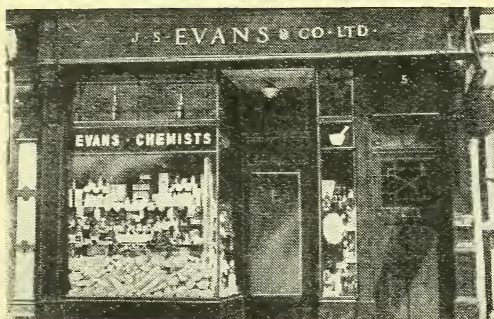
Modern professionalism: Blair's of Cork.



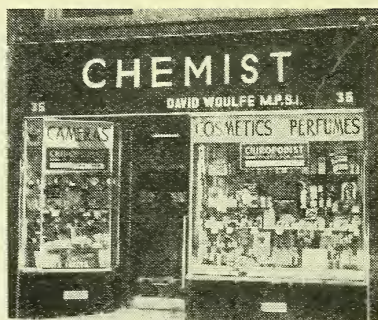
Neon in the fascia at Dublin's Killester suburb.



A bijou pharmacy at College Green.



Where many Irish Week awards are won.



On fashionable Grafton Street.

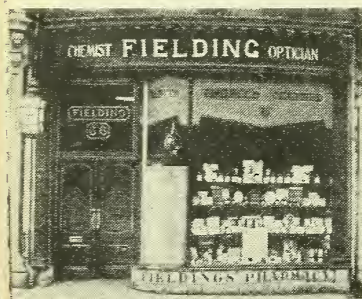
Dublin's ultra-modern pharmacies: the ornate corner establishment of Cosmétique et Pharmacie, Ltd., Dawson Street. Here the façade is made a frame for small chromium-set windows in which effective displays can be achieved. Panel windows are also to be found in the bijou pharmacy recently opened by Miss Una Gleeson at College Green. Working there within narrow space, the designers have produced a really ornate entrance to an interior of great charm, executed in light waxed woods.

The trend towards newer and better designs in pharmacies is not confined to Dublin, as is seen in the pharmacy of Mr. J. P. Kissane (the president of the Pharmaceutical Society) at 54 Main Street, Tipperary. Mr. Kissane is also an optician, and both qualifications are emphasised to good effect in the bold letter of the fascia. Off the dispensing department is a well-equipped sight-testing department.

In suburban pharmacies one of the most recent and outstanding examples is the new frontage to Mr. M. D. McHale's pharmacy, Howth Road, Killester, Dub-

lin. Most effective is the word "Chemist" in red neon-lighted scroll against the white background, particularly at night. The clean cut lines, admirable window space, and wide-open approach make the pharmacy one of the most attractive and admired around Dublin.

In Cork, a walk down the famous St. Patrick's Street shows that southern chemists have not been sleeping. Old-timers who prefer tradition to chromium plating are Fielding's, the Arthur Mayne pharmacy, and the MacSweeney corner pharmacy. The distinctive character of these older pharmacies is well preserved. T. R. Lester, Ltd., perhaps one of the oldest businesses in Patrick's Street, and one with a substantial prescription business, put aside its Victorian exterior some years ago, but went modern in an entirely discreet and dignified way. Across the street the old Cork pharmacy of Blair's also adopted a modern look some years ago, achieving a happy medium between the up to date and the professional. Like Lester's, the Blair pharmacy has a big prescription business.



Fielding's of Cork.



The president's fine frontage at Tipperary.

A medical service outside NHS

HOW THE INDUSTRIAL MEDICAL SERVICE OF

LONDON TRANSPORT

PROTECTS THE TRAVELLING PUBLIC AND PROMOTES THE WELFARE OF ITS STAFF

WHEN the National Health Service came into operation in 1948 the only substantial medical field not taken over by the State was the medical service provided in industry by enlightened employers. Among such industrial medical services that of London Transport Executive ranks high.

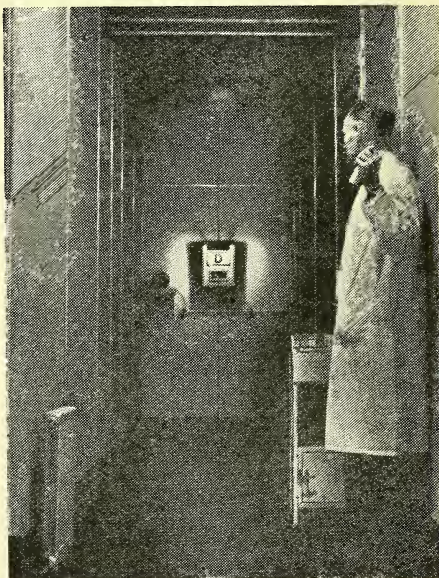
The London Passenger Transport Board, it will be recalled, was established in 1933 to unite into one public undertaking a variety of private and municipal bus, tram and underground train organisations. Although some of these employed medical practitioners on a part-time basis the Board felt that it would be desirable in the public interest to develop a first-class industrial health service. Lord Horder, who has remained medical consultant to the Board and its successor the Executive, was asked to advise, and it was to his design that the department has been developed.

Scope of the Service

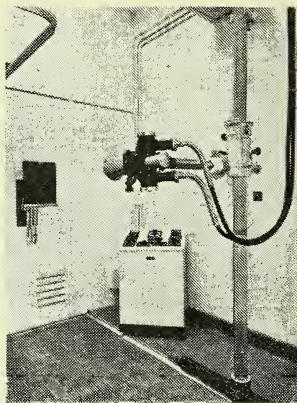
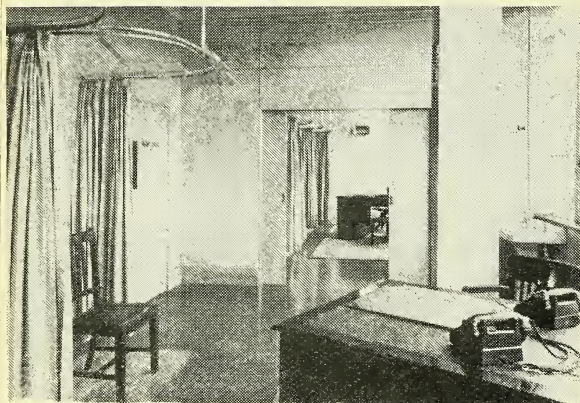
Under its chief medical officer, Dr. Leslie Norman, the department has become highly organised within the limits of an industrial health service. That is to say, it provides no medical treatment except in minor degree at Chiswick and Aldenham works, which are concerned with buses, at Acton works (railways), and at Charlton works (trolleybuses), which come to some extent within the Factories Acts. The Medical Service is concerned principally with medical examinations of personnel, and with public health matters such as the supervision of hygiene in the Executive's canteens. The two aspects account for approximately three-quarters and one-quarter respectively of the total work involved.

At first the work was centred at Griffith House, Marylebone Road. Later a policy of decentralisation was decided upon and four centres, each serving roughly one-

quarter of the area covered by London Transport services, were established at Griffith House (North-west), at the divisional offices at Manor House, N.4 (North-east), at Chiswick (South-west) and Peckham (South-east). Each medical centre has two medical officers, a medical orderly and ancillary staff. At Griffith House Dr. Norman has his headquarters, and there is also present a lady doctor (Dr. Myatt) to deal especially with medical matters affecting young persons and female staffs. In all, then, there are ten doctors, and it is of interest that two of them (Drs. Fairlee and Myatt) qualified in pharmacy before graduating in medicine. At each centre there is a medical orderly.



If a man is to become a driver he must have good sight. Therefore it must be tested.



At Griffith House the medical officers have many entrants to examine in the course of a day. A sliding door between adjoining consulting rooms saves valuable time. If necessary a radiographic examination is made, using the most modern equipment.

Whenever a person is considered for engagement as an employee of London Transport, no matter in what capacity or at what level, he or she is medically examined at the central recruitment centre, Griffith House, or one of the medical centres. The result of the examination is entered on a card, which is kept throughout the period of employment (under lock and key) in a confidential file. After the first examination a form is filled in giving relevant (but not confidential) information, and the intending recruit takes it to an interviewer, who places the applicant, if suitable, in the grade in which he sought employment, or in some other grade if not fitted for the first, or in none if totally unsuitable.

Layout and Equipment

The examination is carried out in a consulting room noteworthy to a visitor for its colour scheme, which is at once restful and varied, one wall being in, for example, pompeian red, and the three others in, it may be, eau de Nil. At the central recruitment department, owing to the large number of candidates to be interviewed, there are three curtained cubicles to each consulting room and a sliding door between two rooms, so that the doctor can pass at once from examining men to examining women entrants if necessary. Each centre includes, beside a waiting room and consulting rooms, a laboratory (principally for urine testing and blood analysis); x-ray room, dark-room and sight-testing room. Each centre is equipped with an

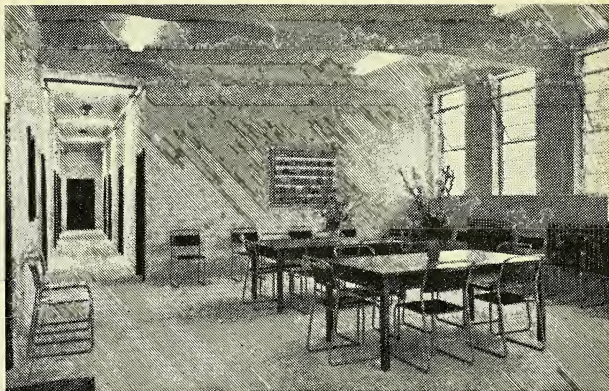
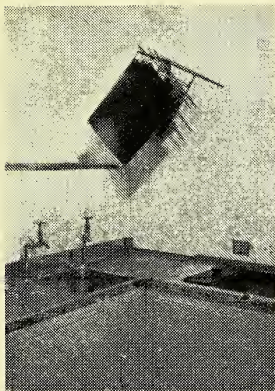
electrocardiograph. As might be expected, special emphasis is laid in the medical examination on (a) sight and (b) chest and cardiac conditions, and (c) efficiency of the joints. The sight tests are aimed at proving accuracy of vision, ability to distinguish coloured signals, and the like. The equipment, while generally resembling that of a sight-testing optician, is more specialised, concentrating on the points of principal concern from a public safety standpoint. It is not the function of the tests to equip a man with spectacles, though at Manor House arrangements have been made, in co-operation with the National Health Service, for an eye consultant from a London teaching hospital to attend once a week. With minor differences resulting largely from the different dates at which they were installed, the set-up at each of the four centres is similar. At all four, the main body of work is concerned with employees in three principal groups.—

(a) Any employee in grades concerned with the operation of vehicles who has been absent sick for twenty-eight days or absent three days from an accident whether on or off duty;

(b) any employee who is being considered for promotion to certain grades (e.g., bus driving);

(c) any employee who has reached the age of sixty-five.

For those in group (c), re-examinations take place yearly. Youthful employees (up to eighteen) are also examined yearly and are even encouraged to continue as



X-ray films are developed immediately in an adjacent dark room. There is a pleasant waiting room for candidates who must take their turn.

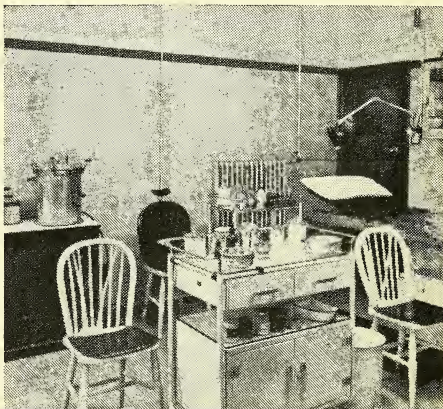
volunteer examinees until they reach the age of twenty-one.

If a medical examination shows an employee to be unfit to continue in the job on which he has been engaged (for example a driver may have undergone a deterioration of vision or a guard may have developed a physical disability) the Medical Officer indicates on a form listing other occupations those in which, from a medical point of view, he could still be employed. The employee is then seen by an interviewer expert in reallocation, who places him in one of those grades, provided, of course, that there is a vacancy.

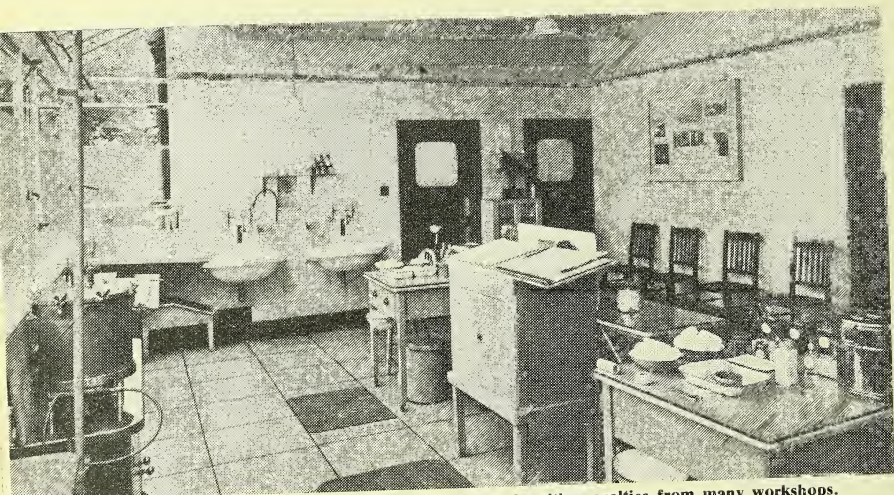
Works Treatment Centres

Of medical treatment in the conventional sense there is none, except at Chiswick, Acton, Aldenham and Charlton works, at each of which there is a treatment room with qualified nursing staffs (under the Sisters Hutchings, Hefford Harrison and Heath respectively). They deal, naturally, with casualties in the works. The bus repair shops being situated over a rather large area, a system of indicators (rather like a house bell system) has been installed to indicate where the casualty is (and therefore how soon he will arrive) or to show where the ambulance must be sent. The casualties, as might be expected, are predominantly cuts and abrasions. Nevertheless the sister in charge has a considerable responsibility, since she must decide whether hospital treatment is demanded. If it is, she must act quickly to get the hospital to accept the patient, and to ensure that the patient is promptly

sent on. Apart from casualties, the treatment-centre staffs give any necessary hypodermic injections and similar routine medical treatments, of course under the supervision and with the agreement of the man's own medical adviser. At Acton the casualties occur mainly in the train repair shops, and when the internal telephone notifies an accident one of the nurses picks up an "emergency box," fitted with every essential for dealing with the situation as far as it can be dealt with on the spot. The box was commissioned by the nurses themselves and expertly constructed by one of the joiners attached to the works. The equipment of the treatment rooms includes an autoclave, and it is used to the full to ensure that sterile dressings and instruments are instantly at hand when needed. Medical supplies are indented for to a central buying department and supplied by a wholesaler under contract.



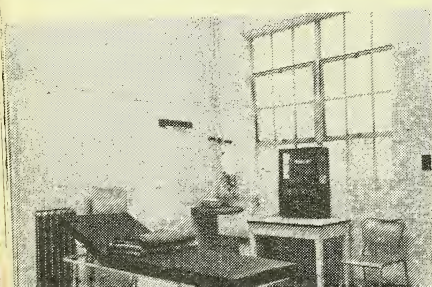
At Acton works there is a surgery for dealing with casualties.



Chiswick works surgery is equipped to deal expeditiously with casualties from many workshops.

A description of the medical services of London Transport would be incomplete without mention of its first-aid facilities. There are first-aid rooms at many of the garages and first-aid teams are formed by many sections of the organisation. The number of workers who hold the certificate of the St. John Ambulance Association runs into between one and two thousand, and special arrangements exist for training them at London Transport training centre. The centre has a full-time organiser (Mr. Harden), who co-ordinates the arrangements for lectures, competitions, etc., and the medical staff contribute prominently (in their spare time) to the training. Not surprisingly London Transport first-aid teams have won many trophies in national competitions, and the competitive spirit is evident within the organisation in rivalry to achieve the greatest proficiency.

Many garages of London Transport have their own first-aid room. There is no lack of trained first-aiders.



The Executive's doctors are encouraged to do much more than examine employees. They are expected to experience the actual conditions in which the employees work. So, when you speak to them you find, perhaps, that one has actually undergone the renowned London Transport "skid" test, that another knows the odd signal on one of the tube lines that is specially hard to pick up. And by using the canteens they are able to spot quickly any slackening of standards.

A PHARMACIST'S ANTHOLOGY

"HAVE you drank the waters, Mr. Weller?" inquired his companion, as they walked towards High Street.

"Once," replied Sam.

"What did you think of 'em, sir?"

"I thought they was particklery unpleasant," replied Sam.

"Ah," said Mr. John Smauker, "you disliked the killibeate taste, perhaps?"

"I don't know much about that 'ere," said Sam. "I thought they'd a wery strong flavour o' warm flat irons."

"That is the killibeate, Mr. Weller," observed Mr. John Smauker, contemptuously.

"Well, if it is, it's wery inexpressive word, that's all," said Sam. "It may be but I ain't much in the chemical line myself, so I can't say."—From "*Pickwick Papers*" by Charles Dickens.

INFLUENZA VACCINES

By A. ISAACS, M.B., Ch.B.

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THE bacteriologist or virologist has a very different idea of influenza from the layman's and he restricts his use of the word to disease caused by one of the influenza group of viruses. What is often described as "a touch of 'flu'" is in many cases an infection with similar symptoms to those of influenza but with quite a different causal agent. This article is concerned with protection against virus influenza rather than protection against 'flu'.

Most doctors and chemists have a very vivid idea of what influenza means. They know by the sudden rush on their services, and sometimes before any official news of an influenza epidemic is announced, that the influenza virus is about. They know too that their drugs are powerless to halt the course of the disease in the individual or the community. They may have some hopes of influenza vaccines; let us see how much justification there is for their hopes.

Influenza Virus

It was in 1933 that Smith, Andrewes and Laidlaw, working at the National Institute for Medical Research, London, infected ferrets with garglings taken from a case of influenza. This discovery was the starting point for the study of the influenza virus in the laboratory. Since then, two main types of influenza virus have been distinguished—influenza A and B, and within each type a number of subtypes have been found. The virus can nowadays be grown from garglings in fertile hens' eggs and can then be conveniently studied by simple laboratory tests. A great deal of epidemiological investigation has been

made possible by these new methods and a number of facts have been thoroughly established. Influenza outbreaks are generally caused by a single type of virus. Following an attack of influenza, an individual is immune to a second attack by the same type of virus for about one to two years. There is no immunity to the other

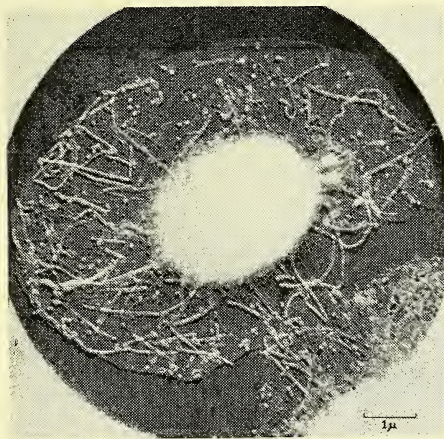
type of virus, however, i.e., influenza A does not immunise against influenza B, or *vice versa*. We might expect that influenza vaccines would protect to roughly the same extent and this is actually the case.

Vaccine Production

In early experiments that were carried out on influenza vaccines, infected ferret or mouse lungs or tissue cultures were used as the source of influenza virus. Nowadays fertile hens' eggs are used everywhere for vaccine production,

the eggs being inoculated with virus by the allantoic route. Each egg provides roughly 10^{10} to 10^{11} (10,000 million to 100,000 million) virus particles or between one to five doses of vaccine. Usually, some form of purification of the virus is carried out, e.g., by precipitation on calcium phosphate or aluminium phosphate, or by high-speed centrifugation. The purified virus is inactivated (i.e., rendered non-infective) by formaldehyde, and a bacteriostatic agent, such as Merthiolate, is added to prevent bacterial growth.

Influenza epidemics do not strike every winter, so that there may be no demand for influenza vaccine for a year or two and then a sudden very heavy demand. This makes the machinery of large-scale vaccine production complex. Fertile eggs are usually bought from a commercial poultry



Electron micrograph of A/Nederland/1/49 influenza virus showing filaments and elementary bodies of influenza virus adsorbed on a fowl red blood cell.

farmer but it is difficult to supply large orders at short notice unless advance arrangements have been made. Egg incubators are required for the preliminary incubation period of ten to eleven days, during which the eggs are turned twice daily. The eggs are then inoculated, incubated for a further two days and the allantoic fluids harvested. The inoculation and harvesting require a little technical knowledge in addition to a knowledge of aseptic techniques but can usually be carried out by trained technicians, provided that a bacteriologist is able to supervise. Trained technicians are also required to run the Sharples centrifuge used for purifying the virus. Finally, tests of the sterility and lack of toxicity of the vaccine must be satisfied. It is often advisable to pool the allantoic fluid from, say, a score of eggs, for bacteriological culture since occasional eggs may become inadvertently contaminated with bacteria. Any contaminated pools can then be rejected without wasting a large batch of vaccine.

Rationale of Vaccination

Following on influenzal infection, human patients and experimental animals develop antibody to the virus in their serum. At the same time they become temporarily immune to re-infection. It is sometimes assumed that the immunity comes from the possession of serum antibody, although in fact the relationship between the two is probably indirect. Influenza is essentially an infection of the respiratory tract and antibody is not very effective in combating infection unless it can get into the respiratory tract. Francis and co-workers in America have shown that nasal secretions contain small amounts of antibody and that following vaccination against influenza antibody appears in the nasal secretions as well as in the serum. They suggest that it is the small amounts of antibody which appear in the nasal secretions, rather than the large amounts in the serum, which determine the efficacy of vaccination. It is obvious, therefore, that influenza vaccines must be used with care and foresight, and it may be worth while examining some of the experiments which have been made to test how effective they are in man.

Since the first influenza vaccines were tried out in man in 1936, numerous vaccination trials have been carried out, some designed to see whether vaccination produced a rise in serum antibody and others

designed to answer the more difficult question whether vaccination would protect against influenza. As a result of the experience of many years' trials, it is possible to give a positive answer to the first but only a qualified answer to the latter question.

There is little doubt that influenza vaccines given in adequate dose produce a significant rise in serum antibody. Different strains of virus vary in the amount of antibody response which they produce, but with most strains the serum antibody shows a sharp rise within a week of injection and remains raised for a variable period of between three and twelve months, depending on a number of factors. One of the most carefully recorded studies of the antibody response in man to influenza vaccination is that of Hirst and colleagues (1942). They found that the antibody response varied with the amount of vaccine used, so that, within limits, a ten-fold increase in the concentration of virus given produced a two-fold increase in antibody response. There was a wide individual variation in the antibody response of people given the same dose of vaccine, and results were assessed by taking the mean response of large groups. There is, of course, a limit to the amount of virus which can be given since very large doses are distinctly toxic.

Successful Trial

The first large-scale successful vaccination trial (reported in 1945) was carried out by the U.S.A. Commission on Influenza during the 1943-44 winter outbreak. It should be stressed that whereas a trial of the antibody-producing power of vaccine is relatively simple, the evaluation of its protective power is full of pitfalls. Influenza outbreaks are so spotty and unpredictable both in space and time that it is necessary to immunise large groups of people in order to increase the probability that some of them will be attacked. On the other hand, one cannot immunise a whole population (e.g., of an institution or a barracks) and compare the incidence of influenza in that population with that of an uninoculated population; it is necessary that the controls should form part of the same population as those immunised. One of the best types of trial is where alternate individuals are injected with vaccine or control solution, so that neither the volunteer nor the person assessing the illnesses knows what was injected. Finally, there are many difficulties

in deciding what exactly is a case of influenza; the clinical and laboratory diagnoses need very careful assessing, since there are other conditions which may be confused with virus influenza. The large-scale trial organised by the Commission on Influenza in 1943-44 fulfilled these requirements. Shortly after vaccination had been carried out a widespread epidemic of influenza A occurred; there were 2.2 per cent. of hospitalised cases among 6,263 vaccinated people and 7.1 per cent. of cases among 6,211 controls. These figures show clearly that influenza vaccination is effective in the right circumstances.

Right Vaccine at Right Time

But the circumstances have not always been right. In 1945, trials organised by the Commission on Influenza showed an apparent reduction in the incidence of influenza B as a result of vaccination, but the results were difficult to assess since almost the entire personnel of the U.S. Army was vaccinated. However, further trials in 1947 both in Britain and in the U.S.A. in which alternate vaccinated and controls took part, showed vaccination to be without effect in reducing the incidence of influenza. This was as unexpected as it was disturbing until the reason for the failure became clear. In the 1943-44 trial the infecting virus was closely related in type to one of the viruses used in the vaccine. On the other hand, the 1947 epidemic was caused by the so-called A-prime viruses which appeared suddenly and unexpectedly and which were only very distantly related to the viruses used in the vaccines. It appears therefore that if vaccination is to be successful the vaccine must contain a strain of virus closely related to the epidemic strain. A recent report from America shows a three-fold reduction in the incidence of influenza in an A-prime outbreak when vaccination with an A-prime virus was carried out; unrelated viruses did not protect. This last trial was a small one and the influenza epidemic appears to have been complicated by another respiratory infection occurring at the same time, so that the results are best interpreted with caution. However, they do tend to support the thesis that the right vaccine given at the right time will protect against influenza.

There are a number of requirements which an influenza vaccine should fulfil in regard to dosage, potency, etc.

AMOUNT OF VIRUS.—In most vaccine trials the optimal dose has been found to be the amount of virus present in about 2-10 c.c. of allantoic fluid. One fertile egg would therefore provide sufficient virus for between one and five doses of vaccine. The virus is purified and concentrated so that the dose can be given subcutaneously in a 1 c.c. injection. It has been shown that the toxic reactions, fever, etc., which have sometimes been reported following influenza vaccinations are directly related to the concentration of virus injected and not to any impurities present. This sets an upper limit on the amount of vaccine which can be injected.

Influenza vaccine is given in a single dose. It might be expected that multiple injections of vaccine would stimulate a higher antibody response while avoiding toxic reactions. However, second injections of virus do not produce any greater antibody response than single injections, at least in adults who have presumably had considerable past experience of influenza. On the other hand, children with little past experience of influenza behave differently; multiple small injections produce greater rises in antibody than do single injections and the small injections are without toxic effects.

VIRUS STRAINS.—There are two schools of thought in regard to the strains which should be incorporated in an influenza vaccine. Some workers favour the use of a vaccine containing a number of influenza virus strains with slightly different properties. Others prefer the use of a single recently isolated strain of virus. The extraordinary way in which new variants of influenza keep appearing makes one or other policy necessary if a vaccine is likely to contain virus closely related to the cause of the next outbreak. The World Health Organisation has recently set up the World Influenza Centre in London, working in collaboration with Regional Influenza Centres in many countries. During an influenza outbreak any new strains of influenza virus which appear can be quickly circulated and theoretically they will be rapidly made available for vaccine production. How effective this might be in the face of an epidemic would depend on the speed with which the machinery of vaccine production could be set in motion.

INACTIVATION OF VIRUS.—The virus, as mentioned above, is usually rendered non-infective by addition of formaldehyde

Only small amounts (0.005-0.01 per cent.) are required: large amounts greatly reduce the antigenicity of the virus. It is necessary that the vaccine should be shown to contain no infective virus and, of course, it must be proved to be bacteriologically sterile.

POTENCY OF VACCINE.—It was earlier mentioned that different virus strains may differ in their antigenic potency, i.e., in the amount of antibody which they produce, while in addition, a vaccine may be reduced in antigenic potency by prolonged storage. However, there is no very satisfactory simple laboratory test of the potency of a vaccine. The mouse protection test, which measures the ability of a vaccine to protect mice against influenza, has been used a great deal, particularly in the U.S.A., but it is cumbersome, time consuming and subject to a large number of sources of error. For this reason some workers have attempted to measure the antibody-producing power of a vaccine in mice. This is a simpler test which is subject to fewer sources of error, and Himmelweit (1947) has indicated the relationship between this test and the mouse protection test. There is still room for the design of a test on the lines of some of the recent drug potency assays used in biological standardisation and the author is at present experimenting with a potency test of this type.

Future Improvements

There are a number of directions from which improvements in influenza vaccines may come. One concerns the strains to be used in the vaccine. As the international collaboration in influenza set up by W.H.O. becomes more efficient and as knowledge of the epidemiology of influenza is rapidly built up it may be possible to predict the type of virus likely to cause an influenza outbreak. An example of this was found in 1950-51. It had been noticed before that mild summer outbreaks of influenza may precede a winter epidemic. In summer 1950 a mild outbreak of influenza in Sweden was thought to be a possible forerunner of a European epidemic in the following winter. This in fact occurred, and the virus isolated from the winter outbreak was serologically the same as that found six months earlier in Sweden. In this case there was ample time for making influenza vaccine before the expected winter outbreak occurred.

Potentialities of Adjuvants

Another direction from which improvement seems likely is in the use of adjuvants to increase the potency and the duration of action of a vaccine. One of the main drawbacks of the present vaccines is their relatively short action. Few workers would claim more than one winter's protection as the result of an injection of vaccine in the autumn. Henle and Henle in 1945 had shown that addition of a mineral oil increased the antibody response of a vaccine and kept the antibody at a high level for a longer period. However, abscesses were produced and the technique did not become popular. Recently, Salk, Laurent and Bailey ("American Journal of Public Health," 1951:41. 669) have found that a mineral oil (Bayol F) along with an emulsifying agent (Arlacel A) produced a great increase in the potency of vaccines, so that very small doses of virus produced as great a response as large doses in the absence of adjuvants. In this case also, the antibody titre remained high for long periods. The vaccine is given intramuscularly and this seems to be responsible for the lack of abscesses. If further work confirms that adjuvants are effective and harmless, this will be a big step forward.

Finally, it is worth remembering that it is the antibody in the respiratory tract which protects against influenza. If some means could be found of directing serum antibody to the respiratory tract there might result a better strategic use of antibody already present.

Feasibility of Mass Vaccination

During the past thirty years influenza has been a relatively mild disease and large-scale vaccination of populations has been unnecessary. There are two sets of conditions in which vaccination might become an urgent matter—large-scale vaccination if a pandemic such as that of 1918-19 should ever recur, and vaccination of "key personnel" in times of national emergency.

So little is known about the causes of the pandemic that it is futile to discuss when another one might arise. However, if a pandemic due to influenza virus should occur in the near future, vaccination would probably be the main weapon used in an attempt to halt its progress. With the vaccines used at present there is a practical limit set by the number of fertile eggs

available to the amount of vaccine which could be produced. The adjuvants which Salk *et al* (1951) have recommended might lead to great economies in virus and thus make mass vaccination a more practicable possibility.

Even with the influenza known at present, a large percentage of the population may be struck down within a few weeks, and each person may be out of action for about a week. This is inconvenient in normal times but may be dangerous to the country during a national emergency. An influenza outbreak affecting large numbers of fighter pilots at the time of Dunkirk, for example, might have changed the history of Britain. During an influenza epidemic it is desirable therefore to have enough vaccine available to protect "key personnel." Doctors and nurses who are attending large numbers of influenza cases

should also be vaccinated. For the general population it then becomes a matter for economic policy more than anything else. A balance must be struck between the incomplete protection afforded by vaccines and their relatively high cost on the one hand, and the economic dislocation produced by influenza on the other. In general, the armed forces need to be assured that the machinery of vaccination against influenza is available in cases of need, so that it is in their interests to support regular influenza vaccination programmes.

This account of influenza vaccines has described the difficulties as well as the benefits attending their use. Vaccines are an indirect method of protecting against influenza and they should not be thought of as the last word in influenza prophylaxis. They are rather a foundation on which further research can be built up.

OPIUM AND OPIATES

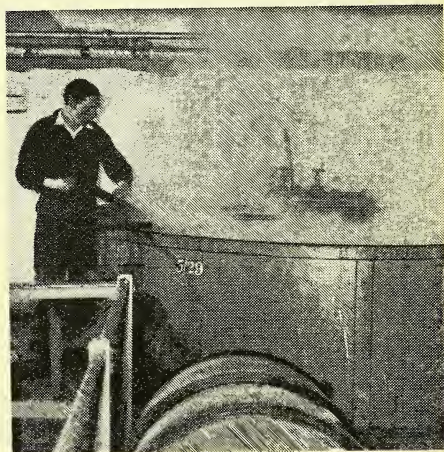
THE discovery of opium as the juice of the unripe poppy capsule, as distinct from the juice of the whole herb, is customarily attributed to the Greeks of the third century. From then until the nineteenth century the various preparations containing poppy juice, the theriacs and electuaries, were esteemed and valued throughout the world. Opium was indeed one of the most important drugs known to medicine and it has continued so until the present time. Thus although the pharmacy of opium had its beginnings centuries ago, the chemistry of the drug was unknown until Sertürner isolated morphine in 1805. With this important discovery the birth of the chemistry of the plant alkaloids was achieved and from that time this field of study has claimed the attention of the foremost chemists of the day. The brilliant researches on the elucidation of the complex structure of morphine and the quest for a suitable synthesis of the molecule are epics in the realm of organic chemistry and have culminated in a synthesis claimed recently by American workers.

Method of Isolation

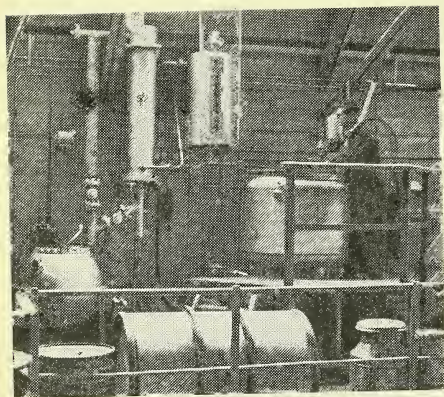
After the isolation and characterisation of morphine and the realisation that here indeed was a potent active principle, it was but natural that extensive work on the discovery of a practical method of isolation should be undertaken, and thus

Merck claimed such a process in 1830, while Gregory published his method in the "Edinburgh Medical and Surgical Journal" in 1831. In 1835 Pelletier described a further method by Thiboumery.

Contemporary with Gregory in Edinburgh were the brothers Thomas and Henry Smith, both of whom were practising physicians, but more enamoured of the esoteric rites of manufacturing pharmacy and experimental chemistry. They founded the firm of T. & H. Smith in 1827. This



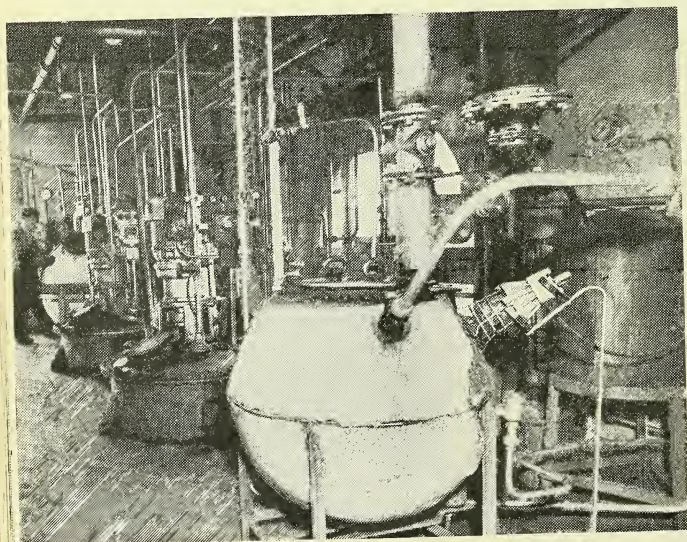
Exhaustion of final residues.



Preparation of methylating agent.

association of events contributed to the pre-eminence of Edinburgh in the manufacture of opium alkaloids which has been retained to the present day.

Thomas Smith with his undoubted flair for research and experimentation soon mastered the Gregory process and in 1837 produced a limited but saleable quantity of morphine. His plant or utensils were indeed primitive and, it is said, were of household origin but, whatever the origin, they were undoubtedly the parents of the present day modern plant.



Alkylolation unit.

Although the cultivation of the opium poppy is widespread throughout the world, the principal sources of supply are India, Turkey and Iran. The Turkish variety is favoured for the preparation of galenicals partly on account of the higher morphine content, while all opiums are used for the manufacture of alkaloids.

Opium arriving in this country is safely stored in bonded warehouses pending sampling, after which it is forwarded to the factory where, after check-weighing, it is lodged in strong rooms. From these strong rooms it is issued to the department for processing and delivered to the care of a chemist who again check-weighs and transfers the opium to the processing tanks, where extraction is immediately commenced. Thus, although large quantities of opium are being handled, the visitor to the factory never sees any.

The methods of extraction with the subsequent isolation of the different basic principles are really based on the classical processes, the important difference being that whereas the original workers were concerned with the isolation of morphine only, the processes of today are economically bound to the isolation of all the saleable bases. This in effect means that although the initial treatment largely follows the original processes, the subsequent treatment of the residual liquors has

been the subject of continuous experimentation. Such liquors have proved the happy hunting grounds for many investigators and, in all, about twenty-four different bases have been found; of these T. & H. Smith, Ltd., have isolated four.

In the original Merck process the opium is exhausted with cold water and the liquor then concentrated to a syrupy consistency. The total bases are then precipitated with sodium carbonate. After long standing, followed by water



Separation and purification of hydrogenated products.

washing, the mass is extracted with alcohol which dissolves out the codeine, thebaine and papaverine leaving behind water soluble extractive, the morphine and much of the narcotine. From this residue the morphine is dissolved out with acetic acid and after treatment with discolouring carbon a semi-pure morphine is obtained.

The Thiboumery process directs that sliced opium be extracted with hot water and that the aqueous extract be then poured into a suspension of lime water and then filtered. To the solution of calcium morphinate, ammonium chloride is then added and the precipitated morphine is obtained in a crystalline form reasonably free from other alkaloids.

The Gregory process exhausts the opium by repeated water extraction, the meconates and sulphates being precipitated as insoluble calcium salts. The bases are then separated by taking advantage of their differing solubilities. Fractional precipitation and crystallisation coupled with selective extraction based on favourable partition coefficients enables morphine, codeine, papaverine, thebaine, narcotine, etc., to be isolated in pure state.

Manufacturers use whichever method suits their local conditions, and in spite of the many difficult and tedious separations the final efficiency claimed by all workers is greater than 90 per cent. of the assay figure.

Having achieved the separation of the three main bases, morphine, codeine and thebaine in a pure form they are now ready for further processing to the final products required by the medical profession. The reactions which are performed on a plant scale are interesting and varied as the following table illustrates:—

MORPHINE

Process	Product
Alkylation	Codeine
	Ethylmorphine
	Benzylmorphine
Acetylation Reduction Oxidation Dehydration	Diacetylmorphine
	Dihydromorphine
	Morphine N-oxide
	Apomorphine

Reactions of codeine are similar to those of morphine.

THEBAINE

Oxidation	Hydroxythebaine
Reduction	Dihydrocodeine

The manufacture of opiates is of course subject to very strict control within the requirements of the Dangerous Drugs Acts, and regular returns are made to the Home Office. As each batch of opium is processed the morphine isolated is weighed and the necessary entry made. The morphine is then lodged in a locked store to await further processing. For the preparation of any of the above derivatives the morphine is reissued to the chemist responsible for the preparation. In due course he returns the weight of the finished product as well as any returned morphine and makes the book entries accordingly. Any residual liquors are regularly evaluated and a balance struck between the morphine originally present and the morphine actually produced.

The finished products are transferred to the dangerous drugs store where once again exacting book entries become necessary. Pharmacists and others engaged in the handling of opiates are well aware of the precautions which have to be taken from a security point of view. This problem becomes of major importance when large stocks are being handled and packed for home and export orders and the most up-to-date protective devices are in operation.

In spite of the many synthetic analgesics which have been produced in recent years, most physicians today would doubtless endorse the remark attributed to Thomas Sydenham, the great seventeenth century physician and founder of the modern clinical method, that "Without opium I would not care to practise medicine."

Acknowledgement is made to T. & H. Smith, Ltd., Edinburgh, for the illustrations and text of this article.

ICHTHAMMOL FROM THE HAUTE SAVOIE

*Within the hills
That stand as sentinels,
Guarding the valley
Where the green Rhone flows,*

*There, where, in ancient times
Great glaciers stood,
And all the world
Was frozen,
And life seemed
A far-off hope ;*

*Where forests later stood
and great earth tremors*

*Buried them,
And ages flowed along,
And life we know today
Had not been born ;*

*There in the lakes,
Where myriad fishes swam,*

*Great tremors moved the earth
And buried deep
Within its crust
All that had been.*

*Now in these days,
Its mysteries revealed,
Saving balsams
Are conjured forth
From deep within
The mountain's secret vaults.*

*For modern science,
Admitting no defeat,
Has brought to human aid
The dead decay
Of ages long forgot.*

*For life can never die,
What once has been
Must yet again create
The living present.*

HERBERT A. BERENS

PHARMACIES OF BRITAIN—1



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VOL. CLVII JUNE 28, 1952

No. 3775

Toxic Ingredients of Compound Medicines

THE writer of a paper published recently in the "British Medical Journal" (see p. 865) has made the valuable suggestion that a committee should be set up to collect evidence on the toxic side-effects of drugs. The writer's proposal is that the committee should act in an advisory capacity to the Poisons Board.

Any procedure that would result in a more systematic examination and classification of drugs according to their toxicity is to be welcomed, and it is true that there is usually—and inevitably—a time lag between the discovery of toxic side-effects in a newly introduced medicament and its inclusion in the Poisons List or Schedules.

But one must remain clear-headed in these matters. Simply to bring a product within the scope of the poisons legislation does not, *ipso facto*, prevent all further deaths from its use. The very evidence the author brings forward in support of his advocacy is proof that something else is needed. His main evidence is of deaths caused by the administration of amidopyrine as one ingredient of compound proprietary analgesic tablets. But as he himself points out, the toxic effects of amidopyrine have been known for fifteen years, and the drug has long been a Part I, Schedule I and Prescription Only poison. Therefore the proposed committee could tell the Poisons Board nothing about amidopyrine that it does not already know, or at least nothing that could cause

it to treat the drug any differently under poisons law than it already does.

Dr. Discombe would, however, introduce a new element into poisons law, namely, a regulation that "no prescription for amidopyrine, its salts, or mixtures of these with any other substance shall be valid unless the prescriber states specifically on the prescription that amidopyrine is required." The recommendation is in principle good, but in practice it will place a new responsibility on the pharmacist, who knows that in order for such a regulation to work smoothly all physicians would have to know (and remember) whether amidopyrine was an ingredient of the preparation they were prescribing.

Now the author himself argues that many prescribers are unaware that, in prescribing one of the ten proprietaries he lists, they are in fact prescribing amidopyrine. But since the time the Pharmacy and Medicines Act, 1941, took effect, the constituents of proprietaries have been printed on the label of every package. Therefore deaths from giving amidopyrine in ignorance can only be avoided by securing that doctors (a) read the labels and (b) know the pharmacological properties of the ingredients named, or (c) that manufacturers omit the compound from their medicinal specialities.

Taking the last point first, the manufacturers of medicinal specialities have undoubtedly a considerable responsibility, and we would be the last to justify any who persisted in marketing a product proved dangerous when he might have used other and non-toxic substances to produce the same therapeutic effect. But the position can never arise, surely, that toxic substances will no longer be included in proprietaries.

There is no escaping the conclusion that the safety of patients turns and is bound to turn on our points (a) and (b) above. Reading the label is fundamental. It is a practice that should be drummed into medical students until it becomes second nature. Knowledge of toxic properties the suggested committee would impart or increase, but its advisory and instructional activities should be directed not to the Poisons Board but to prescribers.



BELL-METAL MORTARS

By E. SAVILLE PECK, D.L., M.A., Ph.C.

IT is now some fifty years ago since I first became interested in mortars. I was visiting an old pharmacy in Cambridge and in a dark cellar I happened to kick one of these mortars and was attracted by its delightful "ring." Since then I have collected some 250 from many countries, and have consulted various records of other collections—in books, pamphlets and journals: English, American, French, Dutch and Italian.

Origins

It is clear that mortars have been known for many centuries. They were doubtless employed by primitive man in the preparation of his food, consisting mostly of grain, which needed reducing to powder before cooking. They probably originated from a cup-shaped hollow in a rock, forming a mortar, and a round stone acting as a pestle.

The word "mortar" has assumed many forms during the centuries such as "morters," "mortyer," "mortere," and, from the 16th century, "mortar." Mortars are mentioned in various literary works, cookery books, inventories and wills. In the Papyrus Ebers, the great medical document, said to have been written about 2500 B.C. and translated by B. Ebells, is a list of diseases and remedies. Speaking of acacia the Papyrus says, "Thou shalt rise early and pound it in a stone mortar until thou pulverizeth it." In Murray's Oxford Dictionary there is a reference to a mortar in a Saxon leech-book about 1000 A.D., where the word is spelt "mortarr."

Mortars have been made of many different materials—marble, stone, alabaster,

iron, bronze, brass, ivory and wood. Those of wood were sometimes used as instruments of punishment. That use of them is mentioned in "The Malden Court Rolls" 1423 and 1468, and in 1637, in "Boy's Historical Collection of Sandwich," a woman carries a wooden mortar through the town "for abusing Mrs. Mayoress." In Proverbs XXVII, 22, we find "Though thou shouldest bray a fool in a mortar among wheat with a pestle, yet will not his foolishness depart from him."

In the reign of Richard II, one Margaret Liggat of Wootten left Thomas, Lord Berkeley, by will, "A brass mortar with an iron pestle." In an indenture of the Castell of Beryke, 1539, mention is made of "A great brass mortar with a pestle of iron for making of powder," possibly gun-powder.

Made Like Bells

In this article my chief concern is with mortars made of bell-metal. In a visit I paid to the Whitechapel Bell Foundry I found that the method by which bells were cast corresponded with the making of mortars (for, by the way, the mortar can be looked upon as an inverted bell, and I do not find the manufacture of mortars was distinct from that of bells in a bell foundry). In early days every household, even the poorest, would possess a mortar of some kind for the powdering of seeds: coriander, cummin, fenugreek and fennel, pepper and all-spice, mustard, turmeric and thyme. What fragrant odours must have filled those still-rooms whilst her ladyship prepared these condiments, sauces, and healing simples!

Mortars were sometimes given as wed-

dung presents. This is seen when the names of two persons are inscribed on the mortar, and is also indicated by such inscriptions as *AMOR VINCIT OMNIA*, whereas a mortar inscribed *SOLI DEO GLORIA* was probably intended for an Abbey or Church for the mixing of incense.

It will be recognised that those old makers and users were no mere utilitarians. Both makers and users had a sense of artistic merit, and most examples are decorated, as we shall see, with designs and characteristics of the period and country of origin. Mortars have, therefore, perpetuated some of the beautiful ornamentation of their time.

In the Abbey Museum of York, there is one mortar dated 1308. This has had a very precarious life, as it was once rescued from being sold with others as scrap for melting down to make guns. Many must have been destroyed in the 14th and 15th centuries, for those met with today are mostly of the 16th, 17th and 18th centuries.

Mortars can generally be considered as divided into three parts:—

- (a) The base the mortar stands on.
- (b) The waist, which may be plain or with decorations in relief.
- (c) The rim, which projects above the waist and is frequently inscribed with mottoes and dates.

The shape can generally be described as cup-shaped, or occasionally cylindrical. Their weights vary from a few ounces to over a hundredweight. The composition of bell-metal mortars is a mixture of copper and tin, or copper and zinc, and some of the heavier ones contain a fair proportion of lead. The colour varies from brownish yellow to dark green. Some have been cleaned and others allowed to rust, forming a beautiful dark-green patina.

Handled Mortars

The pestles used with these mortars are frequently of iron, sometimes of lignum vitae, and occasionally of the same composition as the mortar with which they are found. It is practically impossible to associate a particular pestle with a particular mortar. In point of fact, only in three or four instances from a collection of 250 can I say with reasonable assurance that they were made for one another. Handles are often present and they may be for the purpose of holding the mortar or for fixing it to a bench. They may take the form of rings, knobs or projections decor-

ated with heads of dogs, fish, horses, or human beings.

Many mortars are beautiful in form, design and craftsmanship—evidence of the love of the craftsman for his work and the expression of his individual personality. "What the hand is making the heart is feeling." This attitude, indicating a laudable pride of the maker in his work, is probably responsible for the frequency of the words *ME FECIT* on mortars.

To illustrate the above general statement I will describe individual, typical mortars chosen from my collection.

English Examples

Fig. 1. This is a solid heavy mortar possibly of the 13th or 14th century, measuring 4 in. in height and 6 in. in diameter. Its base is plain and thick, with no marked features. Round the waist are four moulded pilasters. The mortar has two thin square handles, and two solid rounded ones with thick rings attached. The rim is out-turned and plain. The example is similar to a large one, weighing 28 lb., dug up in 1892 in a gravel pit at Barnwell Priory and mentioned in an Inventory of the Priory. With it is a short solid pestle. Dr. Price, of Cambridge University Chemical Laboratory, kindly subjected this mortar and pestle to spectroscopic analysis, and found that both contained approximately 70 per cent. copper, 5 per cent. tin, and an unusually large proportion (25 per cent.) of lead. I think that one could claim that this mortar and pestle were made for one another for, if not, it would be even more strange that they should have been brought together later, seeing that they are of such a rare composition.

Fig. 2. A pleasing mortar, size 5 in. x 7 in., which offers no difficulty in placing its origin. It is dated 1568, and round the lower rim it has the inscription *EDWARD NEALE MADE ME FOR GEORGE BACKSTER*. It is clearly the work of Edward Neale, the second of a family of bell founders at Burford, Oxfordshire. The north transept of the Church at Burford is called the "Bell-founder's Aisle." It contains a mural tablet with this epitaph:—"Here lieth Elisabeth, the wife of Edward Neale, Bell-Founder. Deceased Aug. 8th, 1671.

Here may I rest under this tombe,
Not to be moved until the day of doom,
Unless my husband who did me wed,
Doth lye with me when he is dead."

There was still a bell foundry in Burford in 1907.



2



3



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11



12

Fig. 3. A heavy, solid mortar, size 9 in. x 11 in. Around the rim are the words HENRY KNIGHT, 1618. In good, bold lettering on a broad band round the waist is the inscription GEORGE MILLESENTE. The mortar was evidently cast by Henry Knight, a bell-founder of Reading. This firm existed from 1518 to 1709, and records show that Henry Knight was its head from 1587 to 1622. George Millesente was probably an apothecary of the town at that time.

Fig. 4. A typical English mortar, cast at the Whitechapel bell foundry in 1671 and inscribed HENRY COOPER. It was acquired in 1923 from an old pharmacy in Norwich. The base on which it stands is intended to be fitted into a recess on a wooden stand to keep it steady while powdering drugs. The waist is ornamented with a band of Gothic design, flowers, cap-sular fruits and trefoils.

Dutch and Flemish Mortars

Mr. Wittop Koning, of Amsterdam, records the existence of a mortar dated 1491, which had been cast by Heinrich Rebagch. Many mortars of Dutch origin were brought over by Dutch families who settled in England at the time of William of Orange, and who brought their mortars over with them for domestic purposes. There is a large one in the Cambridge University Chemical Laboratory dated 1722, with the inscription SOLI DEO GLORIA. In the Hospital of St. John in Bruges the old drug pots and vessels were still being used by the nuns and dispensers about thirty years ago. There was also a large bell-metal mortar inscribed in Dutch which, when translated reads "The knocks which I must suffer give the druggist pleasure."

At Malines, in the 16th and 17th centuries, there existed a celebrated firm of bell-founders of the name of Van Den Ghein (Petrus-Jan-Hans- and Willen). One of their bells is in the belfry at Peterhouse Dining Hall, Cambridge, inscribed PEETER VAN DEN GHEIN, 1548. Several of this firm's mortars are to be found in this country.

One of them is shown in Fig. 5. This is of medium size and of a rich green colour. On the waist are flowers, foliage, ornaments, and eagles with open wings. It is a beautiful example of exquisite casting. Around the rim a band is inscribed C. OUDEROGAE FECIT ROTTERDAM

ANNO 1638, showing it was made by Cornelius Ouderogae — A bell-founder of Rotterdam.

Fig. 6. Another mortar measuring 5½ in. x 6½ in., with a conventional design round the waist and under the lip an inscription JAN VAN GHEN ME FECIT.

French Mortars

The French mortars known to me have been invariably small and similar to those originating from Spain. A typical one is:—

Fig. 7. This mortar measures 4½ in. x 5½ in. in diameter. Around the waist are six human half-figures on pedestals and termini, with between them pairs of medallions one over the other and surrounded by small triangular motifs. The medallions depict various saints. In two of them can be seen a Madonna and child and the words NOTRE DAME; in the third a figure holding a staff, with the words SANCTI SIBI.

In the library of the Pharmaceutical Society is a bronze mortar of historic interest. It was for many years at 372 Oxford Street, London, and bears an inscription that it was cast in France by order of Louis XIV, who presented it to his apothecary. It was given to the Society in November 1902 by Mr. Percy Robbins.

Spanish Mortars

In the village of Valledemosá there is a castle called "La Cartuja," where Chopin lived for a short while with Sarah Grand, and in which there is a charming little pharmacy. On the shelves and the floor there are drug pots and mortars, one of which resembles the mortar illustrated here:—

Fig. 8. The base has a ¾-in. band of decorated leaves and flowers. The waist is divided into six panels by pilasters, ½ in. wide, containing similar decorations; in the centre of each panel is a lozenge-shaped boss. The rim has a ¾ in. deep band inscribed:—IHS MARIA ANNO DE 1698. (The N's in Anno are reversed.)

Another Spanish mortar measures 5 in. x 5 in. It has a thin base and round its waist there are butterfly wings, between which there are draped female figures apparently dancing upon a globe or ball. Under the rim there are roses.

There is also a small and squat mortar measuring 3¼ in. x 5½ in. Round its base are two thick moulded rings. On the waist are two cartouches (Chamfrons)

charged with three wolves passant; on either side there is an ornamental vase containing sprays of lilies. The handles consist of two boars' heads with holes through their cheeks. The arms have been identified by Mr. A. Van De Put, of the Victoria and Albert Museum, as those of Arinno of Aragon. The order of the Jar and Lilly was founded by Ferdinand of Castille, brother of Henry III, in 1403.

Italian Mortars

There are many old pharmacies in Italy, mostly at monasteries, all of which seem to have been able to retain many of their old mortars. Illustrations of the interior of these pharmacies can be seen in "La Pharmacia Storica Ed Artistica Italiana" by D. Carlo Pedrazzini, published in Milan in 1934.

Fig. 9. This mortar has a wide rim with an inscription: NICOLA BORTO F. GIO-DANI DI BOLBENO IN TIROLO. It is beautifully decorated round the waist with the acanthus leaf and rings, and is inscribed:—PIETRO PADRE FRATESCO E LUIGI FIGLI CAVADINI FONDITORI VERONESI. There are two handles of horses' heads.

Italian mortars usually have a deep groove above the base.

Fig. 10. A charming little mortar 4 in. x 5 in. in diameter, with a base decorated with thin concentric rings and a border $\frac{1}{2}$ in. wide full of rosettes. Above is another border $\frac{1}{2}$ in. wide inscribed DEO ET PATRIE LIBERATIONEM MENTEM SANCTEM SPONTENEAM HONOREM. The waist is divided into six panels by pilasters; in each panel there is a picture:—

1. Sun enclosed in a frame.
2. Dancing Cupids—very lively.
3. Kneeling female figures. Madonna and child.
4. Stags and two does.
5. Flying dragon on galloping horse.

The rim is inscribed:—T.H.S. MARIA THEOBALDO DE PERSIMONE DE FABRIANO ME FECIT A.D. MDXXII.

German Mortars

The old German mortars now met with—probably of the 15th century—are cylindrical in shape, with flanges or ribs reaching from the base to the rim.

Fig. 11. A large, heavy mortar weighing $1\frac{3}{4}$ cwt., measuring 14 in. x 15 in. diameter, and of the 17th century. The base has a bold, wide moulded band. It com-

memorates the marriage of two persons whose names are inscribed on its waist:—"GABRIEL LOHRMAN MAR. GARETHA ELIZABETH GAR-BEN. M. ENGELHART—KROGER ANNO 1652, Den 8th September." It has two dolphin handles.

Egyptian Mortars

I now turn to some interesting mortars which I have had sent from Egypt. They are not only of a considerable age and interest, but are of aesthetic beauty. They are of bronze inlaid with silver.

In the "Manual of Moslem Art," by Mons. Gaston Migeon of the Louvre, there is a description of this type of metalwork, which is known as silver encrustation work. The method consists of grooving, or sinking into the bronze, the details of the design and in the sunken part made by the tool, silver leaf is impressed without the use of solder. The edges of the sunken part are hammered over the edges of the silver, thus keeping it in position. This particular art flourished in the 13th century, but had a setback between two dynasties. The art revived during the reign of the Sultan Kaloum, and probably reached its zenith in the 14th and 15th centuries. There are five mortars of this kind in my collection, and the one illustrated (*Fig. 12*) is the most interesting of them. The inscription is indistinct, but fortunately the part that can be deciphered happens to be the most important. It records that the mortar was made for "Kait Bey Sultan of Islam and of the monarchs of the age." Kait Bey was also one of the Mameluke kings, and reigned from 1468 to 1495. The pestle sent with it is of the same colour and design, with traces of silver on the shaft. It exactly fits the mortar—I consider it is one of the few instances in which it can be said with confidence that the pestle was made for the mortar.

It will be seen that this article is in no sense to be considered as a comprehensive history of old mortars, but rather an annotated catalogue of some of the more interesting specimens in my collection. A history is still waiting to be written by someone with the necessary historical knowledge gained by wide reading and research. Such a history would require many illustrations of the various types associated with the different countries and would be costly to produce. If this article should inspire someone to write this history in English, I should be well pleased.

June 28, 1952.

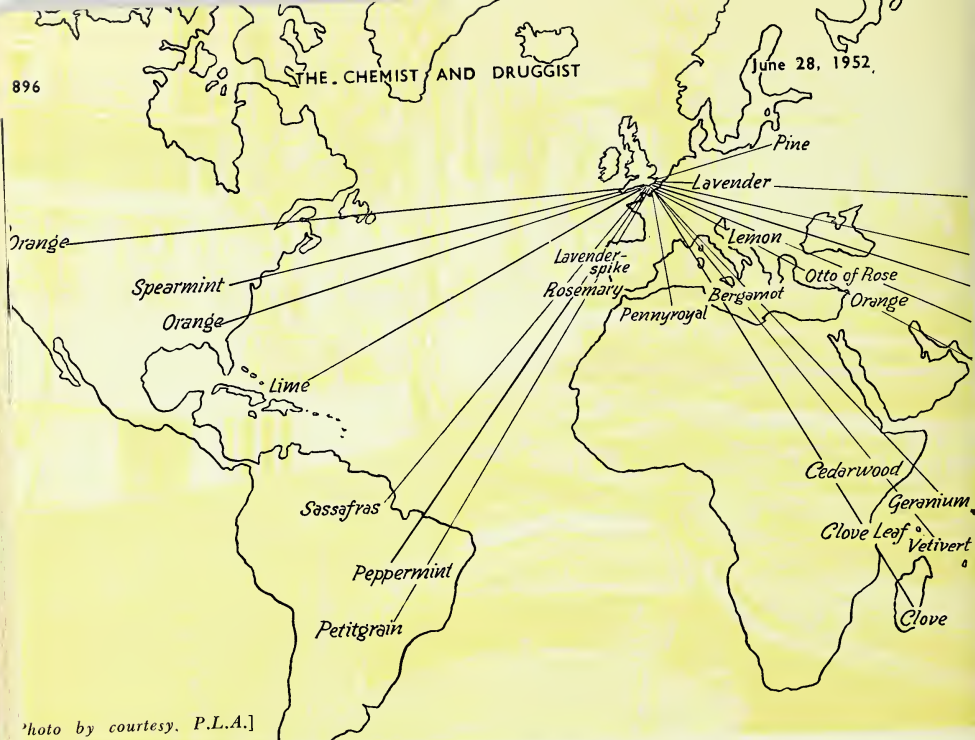


Photo by courtesy, P.L.A.]

ESSENTIAL OILS: Their Arrival and

THOUGH the essential oils industry in Great Britain is in itself only a small industry within the country's economic framework the turnover of finished goods that require small additions of them runs into many millions of pounds a year. Since the plants from which the oils are obtained either do not grow at all, or do not grow in sufficient quantities, in this Island and the optimum yield of oil is usually obtained at a critical period in the life cycle of the plant, the bulk of oils used are imported. Some need further refining in Britain before going to the consumer whilst others are ready for use.

Their aromatic quality and often their relatively high money value necessitate special measures of handling in shipping and storage. As may be imagined it is impossible to provide skilled labour in handling oils at all the docks at which such cargoes are discharged, nor is it possible to set aside a special warehouse at each dock to house those oils, whether dutiable or not, that are not destined for immediate delivery to merchants or consumers. The Port of London Authority primarily

handles most of the oils entering Britain. Out of a total of 2,683 net tons which entered the country during 1951, about 2,289 tons arrived at the London Docks. Instructions are received by the P.L.A. from merchants asking for particular parcels of oils to be landed, cleared of Customs (or if any are subject to duty, put "in Bond") and delivered to nominated receivers. Such instructions may or may not be accompanied by bills of lading and other shipping documents. If the oil is not required immediately, instructions are usually given for it to be put into one of the riverside warehouses. Like many other important cargoes housed in London, essential oils are handled and stored in accordance with a long standing custom of the trade, and the specialised knowledge possessed by the warehouse staffs and the siting and suitability of the warehouses have resulted, during the course of many years, in the oils becoming associated with certain warehouses. Two of the most prominent are No. 2 Warehouse, London Dock (operated by the P.L.A.) and Smith's Wharf & Warehouses, Ltd.



valinch is usually kept for each type of oil, and as the range of oils tends to increase, so does the rack in which the valinches are stored. Apart from the owner, the Excise authorities may also demand samples to test for the presence of alcohol. Where such oils are under test the goods cannot be released from the warehouse until the result of the test is obtained from the Government laboratories unless a deposit is paid for any duty that may be incurred.

Important Warehousing Centre

London Dock (not to be confused with the general system of docks in London) is accessible only to small steamers, but it provides an important warehousing centre for the P.L.A. The essential oils go to the stone-flagged ground floor of No. 2 Warehouse when the Authority is asked to provide accommodation. Built nearly 150 years ago, and situated not far from the Tower of London, this warehouse remains practically in the same state today as when it was built in 1804. Great damage was done in the vicinity by the air raids of 1940-41, but No. 2 escaped severe damage. Its brick walls are up to 3 ft. thick and the three upper floors, housing anything from 700 to 800 tons of crude drugs, are supported by oak stanchions 18 in. square.

The drums of oil are weighed on a particularly interesting scale the exact age of which nobody seems to know. This scale must have been in use in the warehouse for over seventy years, as the weights bear the name of the East and West India Dock Co., and in 1888 the undertakings of the East and West India Docks Co. and the London and St. Katharine Dock Co. were put under the management of the London and India Docks Committee. The scales hang from an angle iron driven into the cross beams of the roof. On one side of the scales the drum is gripped by

The last two drums of clove oil from a lighter being hauled into Smith's Wharf. A full lighter rests alongside.



Storage in London

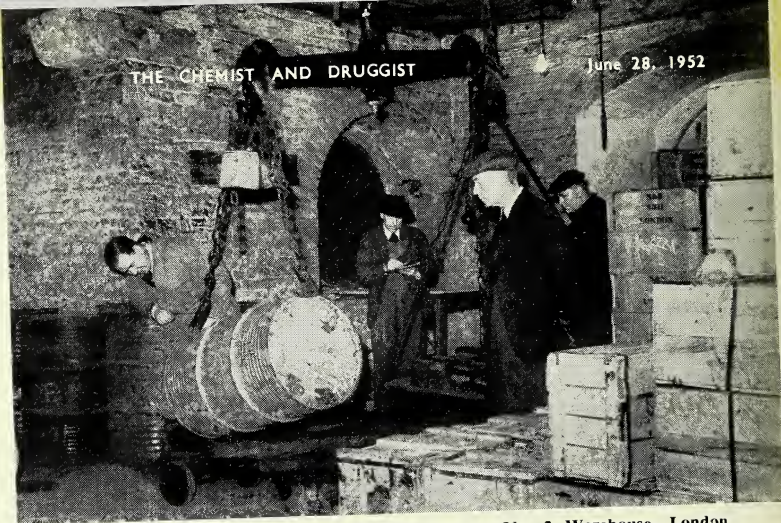
Cargoes unloaded further down the Thames and not required for immediate delivery are usually brought by lighter or road transport to these warehouses. In the case of dutiable oils, where the consignment cannot be sealed, a Customs watcher travels with the goods and hands them over to the warehouse's "resident" Excise officer. As the drums arrive they are weighed and marked with the receiving weight, the initials of the ship that brought them to the country and the ship's rotation number. The drums are then put into store until delivery instructions are received from the merchant.

An important part of the service that the warehouse renders is the supplying of samples from various batches of oils as they arrive. Before the samples are withdrawn, the drums or cans are thoroughly agitated to ensure that an accurate specimen is procured. The sampler draws off about three or four ounces by means of a plunger known in the trade as a valinch. Made in a variety of lengths of either steel or glass, the valinch works on the same principle as a pipette. A separate

two iron grapples and on the other sufficient weights are loaded on to a wooden platform to counterpoise the load. The scale will register with an accuracy of 1 oz. any load up to 8 cwt. Over fifty different types of essential oils are handled in the warehouse, chief of which are spike lavender, clove, lime, nutmeg, eucalyptus, citronella, lemongrass, peppermint and sassafras. Since the foundation of the State of Israel the nationals of that country have developed an appreciable industry in orange oil, and increasing quantities are now being received at London Dock from that source as well as from British West Africa.

Menthol, though not an essential oil, is usually stored alongside the oils.

Smith's Wharf must be one of the oldest companies in Britain to specialise in the warehousing and trans-shipment of essential oils. Founded in 1832 at Worcester Wharf, it moved further up the Thames to its present accommodation when the present buildings were erected in 1864. The premises are situated around Queenhythe, between Southwark and Blackfriars Bridges



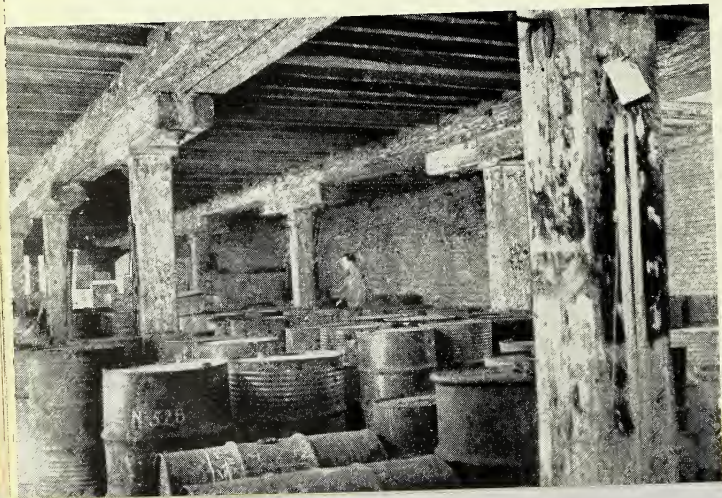
A drum of oil being weighed on a beam scale at No. 2 Warehouse, London Dock. Cases of oils are seen on the right while the thickness of the warehouse walls can be judged by the alcove in the centre.

and quite close to St. Paul's Cathedral. A large warehouse which the company owned in Harp Lane was lost in the London blitz, but all the others came through with only minor damage. Part of the cavernous vaults of the one illustrated was used as an air raid shelter. Except for gangways, the floors in this and the other warehouses set aside for oils are completely filled with all sizes and shapes of containers. The most frequently used container today is, of course, the steel drum, but many come in tins of varying capacity and boxed for speedy handling. Palmarosa used to arrive in "copper pots" but the pots are not often seen today. Lime oil from the West Indies comes in "milk churns."

Samples of oils such as aniseed, which

readily solidify at cool temperatures, are taken by "stabbing" the mass with a long hollow steel plunger which collects the oil as the rod is gradually forced to the bottom of the drum. The sample, after melting and shaking, is a fairly true specimen of the

Oils awaiting collection at London Dock. Note the thick oak stanchions supporting three upper floors.



oil. If, however, the consignment is in dispute, and the sample is required for arbitration purposes, Smith's Wharf have a series of hot chambers in which the drums are placed until the oil has liquefied. After mixing in the usual way, a liquid sample is drawn off.

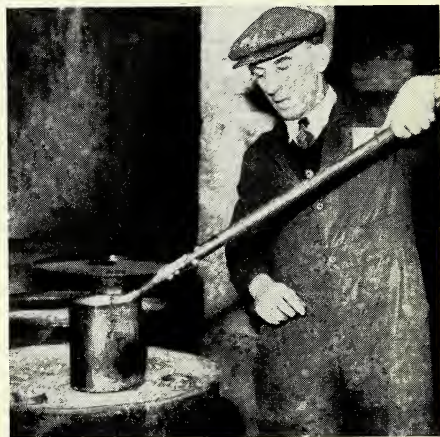
On prolonged storage, oils tend to precipitate resin, or other matter. The importer usually wishes to get rid of such extraneous matter before offering the oil on the market, and the warehouse carries out that service. As can be appreciated the warehouse is not equipped with filter presses or high speed centrifuges, so the racking method is resorted to.

More and more the warehouses are being used by importers as a depository rather than as an in-out warehouse. That is particularly so in times of a predominantly falling market, as at present. Extremely expensive oils like otto of rose now come by air. (An illustration of the type of packing used for otto of rose is on p. 900). Orders for sandalwood oil are now accepted by at least one company on a two-day delivery basis from India. Though such transactions would appear to cut in on the function of the warehouses, it is unlikely that there will be any radical changes in the present arrangements for importing and storing the greater part of the essential oils entering Britain.

THE CHEMIST AND DRUGGIST

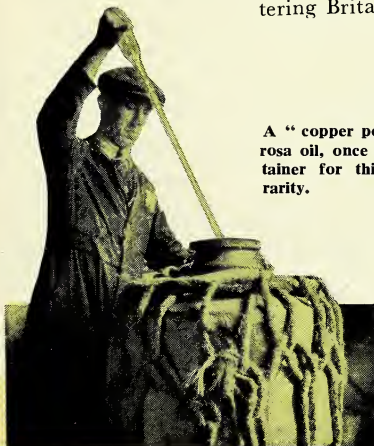


A batch of oil being cleared of extraneous matter by racking at Smith's Wharf. The oil is poured into a battery of tanks and, after standing, the supernatant oil is drawn off from taps, the lower layer being subsequently filtered.

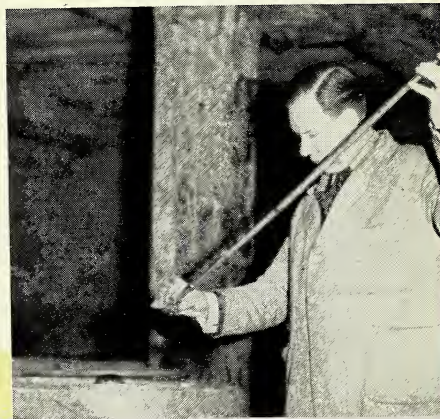


Above: A "stab" sample of solidified anise oil being taken.

Below: A metal valinch being used to withdraw a sample of clove oil.



A "copper pot" of palmarosa oil, once the usual container for this oil, now a rarity.

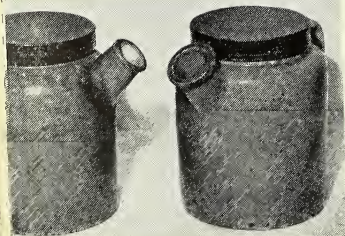
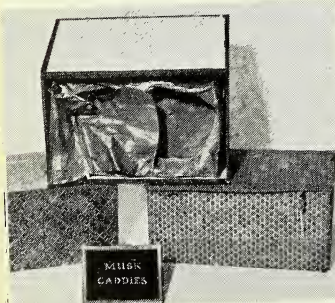




In the group above are:—A measure with lower cylindrical and upper conical part for minims and drachms respectively. A glass bottle grooved in the face to accommodate an acid tube. A quassia-wood flask that provides a recurrent "tonic" when filled with water and allowed to stand for half an hour. An early English horn medicine-measure. A metal respirator for volatilising medicaments for inhalation (fifty years ago they were in common use). A pill burnisher, for silvering and coating. A poison bottle patented in the early 19th century: it was filled from the bottom and corked, and the contents were drawn off through an orifice in the neck of the bottle, the top being of glass and covered with a lignum vitae cap. A boxwood mercury bottle. A tooth extractor, fitted with clamps of varying size to fit different-sized teeth (which were removed by hand leverage "secundum artem"). An eye-bath in the form of a syringe. A handled evaporating dish. An early clinical thermometer. And a boxwood measure for seltzogene charges. Diagonally across the type, in colour, is an alligator, an alchemist's "essential."

At left, in downward sequence, are three Persian musk caddies, covered in patterned silk, and with inner lead encasement for the pods; two stoneware syrup jars with metal lids; and three oak barrels for storing botanical drugs; the barrels were made in various capacities from $\frac{1}{2}$ to 5 cwt.

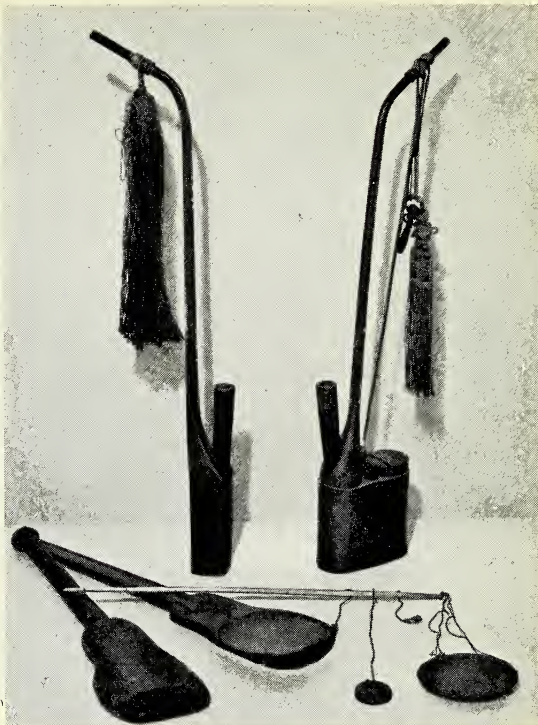
Below: Containers for otto of rose. The otto came formerly from Bulgaria in circular cans bearing the seal of the Government, or in bottles decorated with star and crescent, or in rock-crystal stoppered tubes holding "precious little."





MR. FAIRLEE'S PRIVATE MUSEUM

DURING many years Mr. A. J. Fairlee, M.P.S., founder and chairman of directors of A. J. Fairlee, Ltd., chemists, 71 Lavender Hill, London, S.W.11, has been an enthusiastic collector of objects associated with the practice of pharmacy. A few of them are shown on these pages.

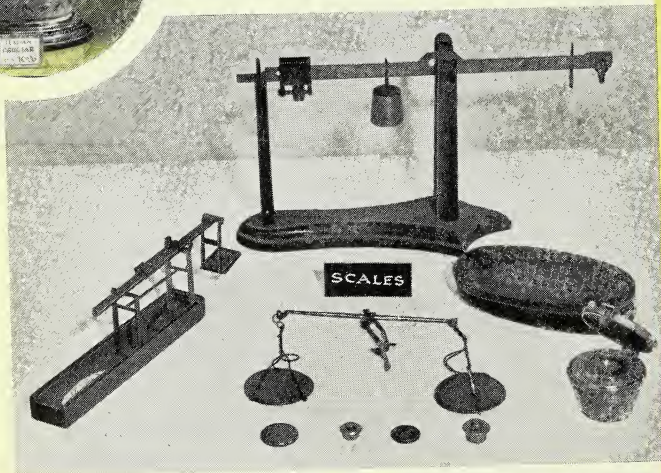


Above: Examples of pipes used for opium smoking. In the foreground is a Chinese hand balance of steelyard type, complete with case.

Below: Roman and English bottles and an Egyptian kohl pot. The earliest English bottles date from about 1650. Prior to that date, any glass used in England came from Venice or other continental glassworking centres. Bottles of that period are shown at left of illustration. Those at the right are from 1700-1800.



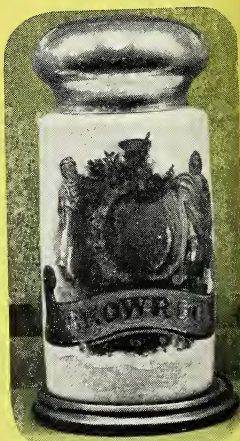
MORE PIECES FROM A PRIVATE MUSEUM



In circle: An Italian drug jar, dated 1623.

Above: Bullock's horns in which civet is both collected and sent to this country; and nineteenth-century leech jars.

At left: An eighteenth-century precision balance by Ramsden, Haymarket, London: it folds into the case. At rear, steelyard balance. In foreground, hand scales, metal case, and weights, and nest of weights in brass box. At left, below: Model of an apothecary's shop made by Mr. Fairlee some years ago to help furnish a Westminster Hospital fair. Below: Specie jar, as still to be seen in some places in pharmacists' windows.



NOTTINGHAM



BRITISH PHARMACEUTICAL CONFERENCE TOWN, 1952

IN Rural Rides, William Cobbett wrote of Nottingham, which he visited in 1830: "In all respects that I can mention Nottingham exceeds all the towns that I ever saw in my life. A fine, most extensive and most beautiful market place; lofty, strong and neat buildings, elegant shops, clean dressed people, active and intelligent men, and sprightly and beautiful women. The environs of the town are as fine as the town itself. Open on all sides: prospects; the town itself presents great inequality of hill and dale; and all of this without any of that beggarly, any of that squalid misery which to me has been the great drawback in the merits of so many other places." Since those words were written many changes and improvements have taken place in Nottingham, but Cobbett's description, glowing for such a forthright critic, is still almost as appropriate to the city (for the fourth time the venue for the British Pharmaceutical Conference) as it must have been 122 years ago.

The greatest "inequality of hill and dale" is without doubt the red sandstone castle hill rising almost sheer from the plains of the River Trent and its tributary the Leen. It is surmounted, as the name suggests, by Nottingham Castle, and commands views round three points of the compass.

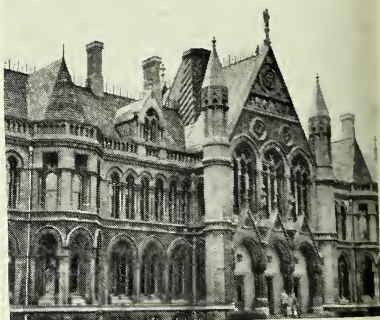
Origins

Standing at the head of navigation and at a crossing place of the River Trent, and possessing a defendable hill, the site of Nottingham was the natural choice for human settlement from earliest times. The neighbouring sandstone caves at Cresswell, and the gravel pits of Beeston and Atten-

borough, have yielded evidence that the county was inhabited by man throughout the early Stone Age, but little is known of the pre-Roman history of the county. The Fosse, a Roman road built about A.D. 48 to link armed posts in a frontier line, passes through part of Nottinghamshire. It includes, within the present county, four armed posts, but the Romans never settled in the site of Nottingham. As the ending "ingham" of the name suggests, the county capital originated in the Anglo-Saxon conquest, when the invaders in the fifth and sixth centuries penetrated the Trent Valley as far as the site of the present city. Nottingham and its county, in common with the East Midlands, were later settled by Danes, as evidenced by the many village names ending in "by" and "thorpe." Norsemen (Norwegians) were also among the invaders and a pure Scandinavian word "gate" for "street" still persists in a number of Nottingham street-names (Goose Gate, Fisher Gate, etc.).

Story of the Castle

The work of building a castle at Nottingham was entrusted by William the Conqueror to William Peverel about two years after the Battle of Hastings. The castle acted as a nucleus for a new town known as the Norman or French town, so that twin towns existed for a time, expanding Nottingham to an area which remained substantially unaltered from the eleventh to the nineteenth century. The castle was often the scene of historic events, some of them violent. Twice the town was burnt during the reign of Stephen the Usurper—in 1153 by Peverel's garrison as part of a "scorched earth" policy to re-



Nottingham Buildings and Activities

Above: The old University College building, now Nottingham Technical College.

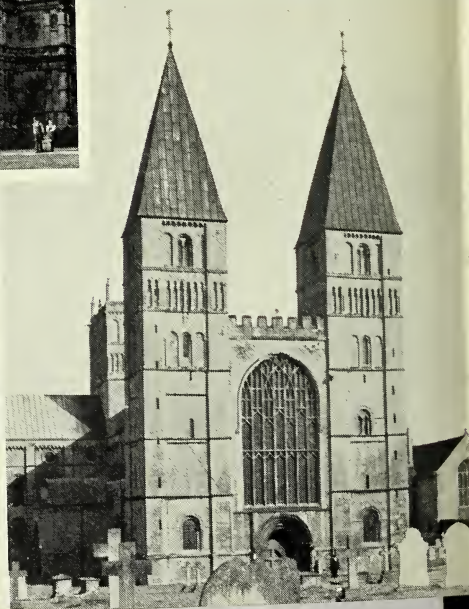
Top, left: The Council House and Old Market Square.

At left: Wollaton Hall.

Bottom, left: Nottingham Castle.

Below: Southwell Minster, Nottingham's diocesan church.

[Lower three photographs by courtesy, "Nottingham Journal,"]



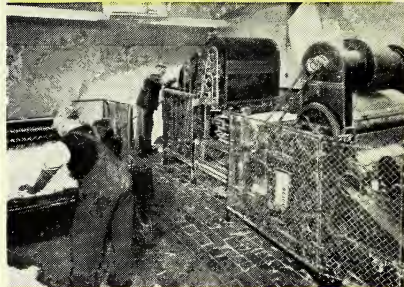


Above: Interior of the main library of Nottingham University.

Below: Weaving hair nets of almost cobweb fineness at the factory of Raywarp Textiles, Ltd.



Students at work in the new pharmacognosy block at the University.

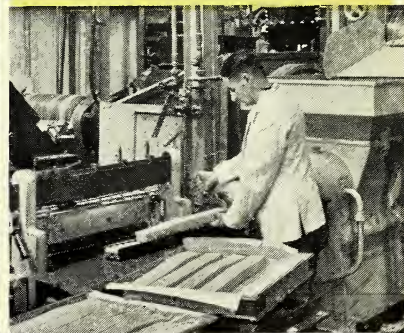


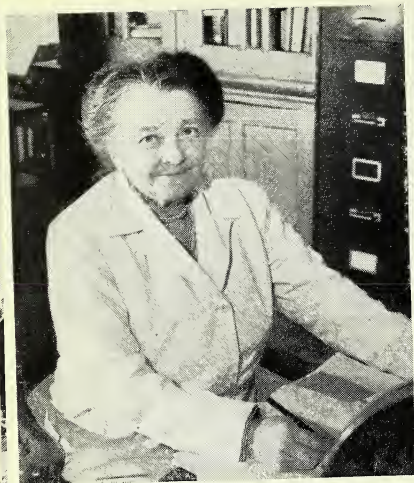
Cotton wool being prepared by Splendor (England), Ltd., at a Radford factory.



Above: Headquarters of Rexall Drug Co., Ltd., Kirkewhite Street.

Below: Cutting soap at Pure Products Soap Co., Ltd., Colwick Industrial Estate.





Left : Miss F. B. Prince, M.P.S., in her office at the General Hospital. Right : In the hospital's dispensary.

pulse an attack by the later Henry II. In 1330 Edward III entered the castle by stealth (supposedly through a hole in the sandstone now known as "Mortimer's hole") to capture Roger Mortimer, Earl of March. In Stuart times the ceremony signalling the commencement of the Civil war was enacted in Nottingham. In 1642, when war between Parliamentary and Royalist sympathisers was inevitable, Charles I, on August 22, unfurled his banner at Nottingham, which was at the edge of the generally sympathetic north of England, after giving notice to all who could bear arms to rally to him. There was little support. The site of the ceremony on castle hill is now known as Standard Hill. On the departure of the King and his company, Roundheads took control of the castle, and John Hutchinson was appointed its colonel. Nottingham and castle were threatened several times. In 1643, Royalist forces sacked the town and raked the castle's outer yard with fire. For over a fortnight they held Trent Bridge.

Royalists Repulsed

In 1646 Hutchinson ended the first civil war by occupying Newark. In 1648, Royalist supporters under Sir Philip Monckton were dispersed near Willoughby Church outside Nottingham by Edward Rossiter and his forces. Monckton and others were taken prisoner.

Over two hundred years later, in 1831, the castle again saw violence in the rioting over the rejection of the Reform Bill. The castle, owned then by the Duke of Newcastle, was burnt to a shell by the mob, who had been swelled in numbers by "strangers" attending the annual Goose Fair.

The first known reference to the royal Sherwood Forest, with which the name of Nottingham is so often linked through legends of Robin Hood, is in the pipe rolls of 1130. There is evidence that Henry II, if no other king, hunted in the forest, and he may have originated the palace at Clipstone. Much of the original forest is now cultivated, or was replanted in the eighteenth century. There is no trace of the existence of any outlaw of the name of Robin Hood.

Early Industries

Among the numerous industries that have arisen or settled in Nottingham are pottery, bell founding, alabaster carving (the calcium sulphate medium coming chiefly from Chellaston in Derbyshire), and silk. In 1710, William Ayscough set up a printing press in the town, establishing a newspaper, the "Weekly Courant," of which the "Nottingham Journal," the second oldest local paper in Britain, is a direct descendant. The chief industries of the county at the end of the eighteenth century were coal, framework knitting,

cotton and lace (from which the modern elastic stocking industry is derived). The city's modern industries are mixed. Outstanding among its manufactures are drugs and chemicals, tobacco, bicycles, hosiery.

Of the famous men Nottingham and district have contributed to the world, the most widely known is perhaps Lord Byron. The home the poet loved best was Newstead priory (usually known as abbey) founded by Henry II. Henry Kirk White, another local poet, attracted the notice of Southey, but died aged twenty-one before his full talents could be assessed. Richard Parkes Bonington, an artist of promise, born at Arnold, Notts, also died young (at twenty-six). Philip James Bailey, born in Nottingham in 1816, was the author of *Festus*, a religious poem of some note.

Nottingham Scientists

To the world of science the district has contributed the first skilled English surgeon of whom records exist: John Arderne, who practised in Newark, 1749-70. Dr. Marshall Hall, F.R.S., born in Basford, Nottingham, in 1790, was closely associated with the formation of the British Medical Association in 1836. A pamphlet he presented to the Royal Humane Society on artificial respiration was coldly received, but afterwards accepted as standard. Hall was an early advocate of a change to the decimal system in the Pharmacopoeia. George Green, 1793-1841, a miller's son, published work on mathematics and physics which won him chiefly posthumous recognition.

Between 1580 and 1588 Sir Francis Willoughby built Wollaton Hall, now the city's natural history museum, out of proceeds from the sale of coal. Willoughby experimented in the manufacture of glass and the growing of woad. In the same period William Lee, a small freeholder of Calverton, evolved his stocking frame (see p. 914). Another inventor was John Heathcoat, who in 1808-09 invented the pillow lace or bobbin-net lace machine, one of the most complicated machines ever produced by a single inventor. James Hargreaves and Richard Arkwright, Lancashire inventors of cotton spinning machines, established a cotton mill in Nottingham in 1768.

In religion, Nottingham is noted for its association with Charles Wesley, who delivered his first sermon in Nottingham in 1741, and whose followers established their first chapel in the town twenty-three years later. General Booth, founder of Salvation Army, was born in Nottingham.

A historian of note was Robert Thornton, a Nottinghamshire country doctor, who published a 500-page history of the county in 1677, and whose name is perpetuated in the title of a Nottingham antiquarian society with premises and library in Bromley House, Angel Row. Another local historian, and compiler of flora, was Dr. Charles Deering (who was born in Germany about 1690-95 and later fell foul of his professional colleagues over his method of treating smallpox).

The past quarter of century has seen in the removal in 1928 of the Wednesday

Right: A street (St. James') of pharmaceutical associations. No. 64 (extreme right) houses the Medico-Chirurgical Society whose rooms the local Branch of the Pharmaceutical Society may use. The late Mr. Septimus Royce had his school in the street. At the top of the street is a glimpse of the General Hospital: Below: Preparing sterile solutions in the pharmaceutical department of the City Hospital.



and Saturday retail market from the market square to a covered building, and the opening in 1929 of a new Council House by the then Prince of Wales. The dome of this edifice dominates the city like a second castle. The ancient annual goose fair was banished to a site in Nottingham Forest, on the outskirts of the town, on the removal of the retail market. The Ye Olde Trip to Jerusalem Inn, built partly into a sandstone cliff, dates from the twelfth century. In the vicinity are ancient sandstone cave dwellings.

Nottingham was granted the status of a city by Queen Victoria as part of her diamond jubilee celebrations in 1897. It has no cathedral, but its "mother church" is St Mary's. The diocesan church is Southwell Minster, which dates from the Saxon period or earlier. Among the natural beauty spots in Nottingham is the arboretum, opened in 1853. The city has three art galleries.

A Sporting Centre

Nottingham is well known in cricket circles, the Trent Bridge ground of the Notts County Cricket Club being the traditional choice for one of each series of five home Test Matches against Australia. There is an excellent racecourse at Colwick Park, and provision elsewhere for angling, archery (Nottinghamshire Archery Society was the first of its kind to be formed), bowls, golf (twelve courses), rowing, tennis, and skating (largest ice rink in the Midlands.).

An Information and Accommodation Bureau is located at the Guildhall, Burton Street. On its books are to be found details of accommodation in the University district.

Nottingham has always been to the fore in educational matters. The present University has arisen from the first adult school in Britain, which was established in the town in 1789. Housed in magnificent buildings (pictures, *C. & D.*, April 19, pp. 542-43), it is the second youngest University in the country, having been granted its charter so recently as 1948. In 1875, £10,000 was given anonymously to place the work of the adult school on a permanent footing. That sum helped new premises to be built in Shakespeare Street, and they were occupied in 1881. After the 1914-18 war the need for greater amenities was pressing, and Sir Jesse Boot magnanimously donated a park site of about 200 acres for new buildings, and

made provision for the erection of the main buildings of the present University, which was opened in 1928 by the late King George V. The gifts of the founder allowed also the endowment of a Jesse Boot Chair of Chemistry. The original University College buildings now house the Nottingham and District Technical College, which prepares students for, among other things, the Intermediate examination of the Pharmaceutical Society.

Pharmaceutical Education

The history of pharmaceutical education in Nottingham is varied. Between 1911 and 1915 it depended largely on a private school of the late Mr. Septimus Royce, Ph.C., in St. James' Street, at which for a short time Mr. W. Lee, Ph.C. (a life member of the University Court and present chairman of the University's Pharmacy Advisory Committee) was a teacher. Mr. Lee later left to join Boots, Ltd., where he helped to interest Mr. Jesse Boot in education and became head of the company's then newly formed staff-training department. At the same period pharmaceutical education was catered for within the chemistry department at the University College under Professor F. S. Kipping.

After 1918 large numbers of ex-Service students had to be trained, and Mr. J. C. Jinks was appointed to provide a full-time course of pharmaceutical instruction within a subdepartment of the department of chemistry. In 1922 Mr. A. O. Bentley, an ex-Service student who had just gained his Ph.C., succeeded Mr. Jinks, and in 1925 an independent department of pharmacy was established. Mr. G. E. Trease, who was appointed a lecturer in 1925, succeeded to the headship of the department on the death of Mr. Bentley in 1943.

Since the 1939-45 war Mr. Trease has been given professorial status and the title director of pharmaceutical studies. New pharmacognosy and pharmacology laboratories have been built, and the former subdepartment of physiology is now included in the department of pharmacy. The department caters for all post-Intermediate subjects except pharmaceutical chemistry, which is taught by lecturers—holding pharmaceutical and pure chemistry qualifications. It can accommodate 100 students, sixty taking B.Pharm.

The spacious white-tiled dispensing laboratory of the department is on the ground floor in the main building, overlooking on one side the quadrangle and

on the other lawns. Each student's bench is equipped with a set of gold-recessed stock bottles and sufficient apparatus and containers to minimise walking. The laboratory is adjacent to a store. On the same floor is the galenical laboratory (where general principles are learnt) leading to the "advanced" laboratory, which is equipped with machinery for making any galenical on a semi-manufacturing scale. Opposite those laboratories is a pharmaceutical research laboratory. It is used for pharmaceutical chemistry research.

The remainder of the laboratories of the pharmacy department are in newly built single-story blocks sited on rising ground behind the main building. Plans are in hand to transfer the pharmaceuticals section from the main building to the new blocks, thus bringing all the pharmacy laboratories together and giving an increased total area.

The pharmacy department has adequate lecture room accommodation and in all branches there are facilities for research leading to the higher degrees of M. Pharm. and Ph.D.

General Hospital

Nottingham General Hospital is set on Derry Mount, near the Castle and standing high above the town. Built with a legacy from a John Key of Fulford Hall, near York, it was opened in 1782 on a day marked by the ringing of church bells and a procession. Since then it has been greatly enlarged and now has a capacity of 651 beds, and deals with over 350,000 out-patients and casualty attendances yearly.

The pharmaceutical department, under the control of Miss F. B. Prince, M.P.S., has a modern, well-appointed look though it has in fact been in constant use for twenty-seven years. The designer—the present head of the department—celebrates this year her fortieth in that post. On the ground floor as approached from the main entrance, first floor on the north side owing to the steep slope of the hill on which it stands, are situated the dispensary, aseptic room and Miss Prince's office. The dispensary walls are tiled for three-quarters of their height, giving, with the mahogany fittings, maple floor and spacious windows, an efficient and pleasant atmosphere.

Special features of the dispensary include a modified beer-engine type of pump

for raising liquid paraffin and industrial spirit from stock drums in the basement. For the transit of Dangerous Drugs to the wards, substantially built wooden boxes about 8 x 5 x 5 in. are used. The boxes are locked in the dispensary, where a master key is kept, and sent out addressed to the ward sisters. Since the box scheme was introduced in 1922 no Dangerous Drug has been lost in transit.

The part of the Hospital in which the pharmaceutical department is situated was built over a former reservoir, and the deep "tanks" have provided two floors, one of which, the mezzanine floor, accommodates the autoclave room, a drugs store, and a galenical laboratory, equipped with a wide range of semi-scale plant. The department is fortunate in being completely self-contained in one corner of the very large hospital. Since Miss Prince took over the post of chief pharmacist in 1912 the department has had an entirely feminine pharmaceutical staff. The full establishment is six pharmacists and three students. During her forty years as chief pharmacist the biggest change Miss Prince has observed is that the medical staff rely so much more upon the pharmacist for information today that the pharmacist is becoming "more and more a consultant."

Other Hospitals

Nottingham's second general hospital, the City Hospital, stands in grounds covering a hundred acres about two miles from the city centre. It has 856 beds, and is a full training school for State Registered Nurses, and trains pupil midwives. In the same grounds is the Sherwood Hospital containing 800 beds for chronic cases. The City Hospital's pharmaceutical department has a normal complement of eight pharmacists under the direction of Mr. D. H. Cox who has held the post of chief pharmacist for the past twenty-seven years. The department is responsible for the issue of all drugs, dressings and surgical instruments to both hospitals, and for the manufacture of most of the sterile pharmaceutical preparations.

Other hospitals and clinics in Nottingham district are the Newstead Sanatorium, Children's Hospital, Venereal Disease Clinic, City Isolation Hospital, Mapperley Hospital, Nottingham Hospital for Women, Tuberculosis Clinic and Skin Clinic.

(To be concluded)

A Model of Mechanised Production

Output at smooth speed at the Beeston factory of Boots Pure Drug Co., Ltd.

THOUGH much of it has been in continuous use for twenty years, the main plant of Boots Pure Drug Co., Ltd., Beeston, Nottingham, designed by the company's engineers and pharmacists, still leads the world in the use of machines to make swifter, smoother and less arduous the manufacture of pharmaceutical products.

The plant not only manufactures and packs supplies for the company's 1,300 shops, but caters also for a considerable home and export trade, Government contract work, etc.

Situated in a 260-acre industrial and ornamental site in the green Trent plain, overlooked by wooded hills to the south, and by Nottingham University Park to the north, the buildings that house the plant are themselves an expression of beauty that springs from industrial efficiency. They were, in fact, designed by an engineer (Sir Owen Williams), who built them round the plant "like a suit of clothes." From his first glimpse of the "garments," the visitor who accepts Sir Owen's premise—"If the plant is all right the buildings will look all right"—will be assured of the rightness of the plant.

Origins

The idea of the factory grew in the minds of a works planning committee (under the chairmanship of Mr. B. A. Bull, Ph.C.) appointed after the 1914-18 war by the present Lord Trent (chairman of the company). The site was purchased during the nineteen twenties, when it was decided that the projected structure should consist of three factories, each concerned with one of the main categories into which the goods manufactured by the company had been classified: soaps, "wets" and "drys." There were to be included a power station, garage and vehicle-servicing department, and fire station. Always before Lord Trent's mind was the welfare of the staff, and a canteen, works non-vocational college and recreational facilities were also to be provided.

The first section to be built was the soap factory (completed 1929). followed

by the wets building (completed 1932). The drys factory, and the canteen and college, were completed in 1938. Other buildings, including fine chemical works, have since been added.

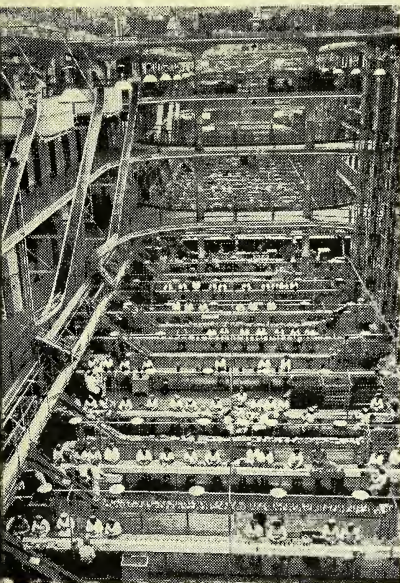
Throughout the pharmaceutical factory the flow of materials is continuous from the arrival docks north of the drys and south of the wets sections, inwards to the rail and road dispatch docks at the centre. A feature that both adds to the beauty of the buildings and has the practical value of locating the floor at loading-dock height is that the ground floor of the factories is set about 4 ft. above the general ground level.

Wets Factory

Perhaps the pharmaceutical heart of the wets block is the tinctures section, which conducts on a massive scale all extraction work, whether for tinctures or extracts. It occupies the south-east corner of the thirteen-acre ground floor. There, in macerators and percolators, drugs that have been passed by the standards laboratory meet spirit or other solvents withdrawn from huge tanks. The finished galenical, once passed by "standards," flows by gravity to tanks below in the cellar, itself as long as the building. In the cellar are tanks of stainless steel, aluminium, chemical stone-ware, etc., for suitable storage of the many galenicals and finished products handled. A "Clapham junction" of pipe lines enables the liquids to be directed by pressure to whatever part of the building they are needed in.

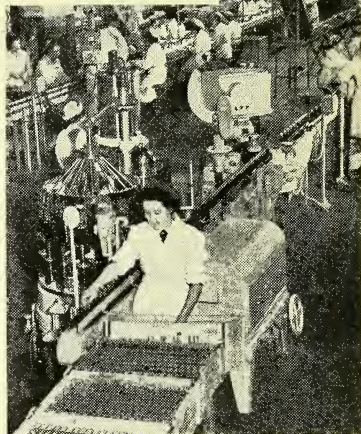
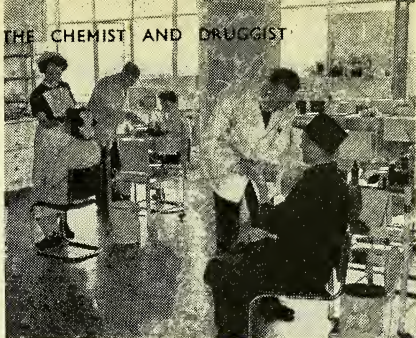
The main packing room (on the ground floor, north of the manufacturing section) lies beneath a roof about 70 ft. high that bridges the space between the two multi-storied warehouse sections of the building, creating the effect of a vast exhibition hall surrounded by galleries (the floors of the two flanking sections). At intervals the galleries are linked by tiers of slender bridges. Across the floor stand, in row after row, fifty or so assembly lines along which containers are carried through the stages of filling, closure, labelling, inspection and parcelling, moving northward

SCENES AT BEESTO

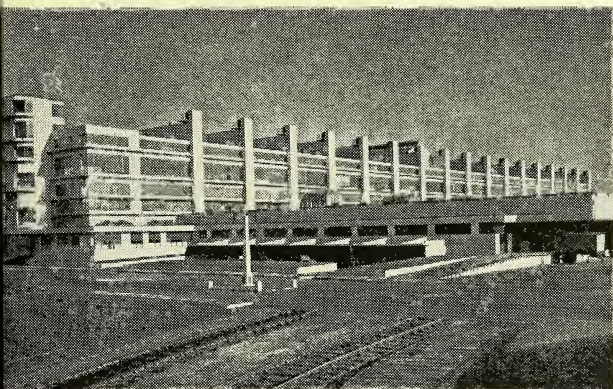


Above: The treatment of injuries (few because of mechanisation) is part of the work of the surgeries of the company's industrial health service situated throughout the factories.

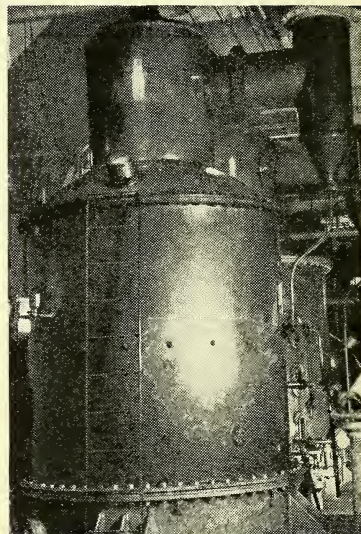
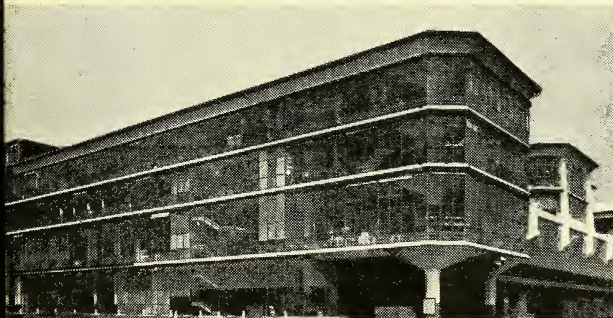
Left: Fifty mechanised packing lines cross the floor of the main packing hall (wets factory), carrying bottles through filling stages from south (left) to north (right). Empty packing boxes are shown descending the chute, (left).



The beginning of a fully mechanised filling and packing line.



Above: "Drys" factory showing external girder structure on the main building and, right, the flat roof.
Below: A corner of the "wets" factory.



In the tinctures section a vacuum extractor is controlled as easily as a ship's engine.

from stage to stage on conveyor belts towards the dispatch dock. The hall accommodates 600 girls. The great height of its roof, which is in fact a honeycomb of glass "port-holes," gives to the hall a constant diffused light and a fresh "out-of-doors" atmosphere—an effect that is increased by glimpses from the galleries of green fields beyond the end glass-panelled wall. In what must be the world's largest pharmaceutical packing room, work at full pressure is carried out in an absence of loud noise or hubbub. From the work rises a mechanical murmur, mixed with a rhythmical ticking like the sounds in a watchmaker's shop.

In the fully mechanised packing processes, washed and dried bottles and caps, labels, cartons and boxes, arrive down chutes or silent lifts from a container warehouse on the southern side. The liquid to be packed flows from a tank into a bottle-filling machine, itself fed mechanically with bottles. Within a minute or less, a bottle has been carried on the conveyor through the filling, capping, labelling and inspection stages, and has been packed and sealed in a fibre-board box ready for dispatch. The girl operatives have little more to do than supervise the machines. The filled box is passed to a silent continuous lift ("paternoster,") and is carried to a predetermined floor in the northern packed-goods warehouse.

Pastes and ointments are made in a section of the floor west of the tincture room, in vats weighing up to fifteen tons when full. The packing operation is done opposite, i.e., to the north of the manufacturing room, maintaining, so far as possible, a horizontal flow of processes across the building.

Aseptic work is more difficult to mechanise, because of both the smaller scale on which it is done and the extra factor of asepsis which has to be maintained throughout. Nevertheless, an aseptic "greenhouse" at the west end of the manufacturing floor is reserved for preparing oculenta on mass-production principles.

Factory within a Factory

Beyond the western limit of the pharmaceutical manufacturing section of the floor is housed a complete "factory within a factory," devoted to the manufacture of perfumes and perfumed liquid toilet preparations. It is completely sealed from the rest of the building to protect other products from being tainted with perfume.

Mechanical Order-assembly

The order-assembly department (a bay on the north side of the building, first floor) also gives proof of the speed and ease resulting from mechanisation. To cope with 650 orders a week, a fortnightly ordering day has been allocated to each of the company's 1,300 shops in sequence. Standard order forms are used, and the system is arranged to clear them at the rate of one every three or four minutes. Use is made of a travelling overhead-tray system to carry goods from the store section to one of fifteen pairs of assembly tables on the same floor. The trays are set to tip the contents on one table of any given pair. When the whole of one order has been assembled, the delivery of goods is switched to the other table. Each case as it is filled is pushed on to an endless conveyor, which takes it to the end of the floor (the conveyor describes a huge loop round the building). There it is transferred by vertical conveyor to the dispatch dock where it again joins the endless conveyor for transit to its dispatch point. On its way it is automatically weighed, and details of its weight, destination, route, packer, etc., are recorded. A machine analyses the figures, and the crate is mechanically addressed.

The construction of the wets building is essentially one of slabs supported on pillars. The drys building, on the other hand, is like a square tube 200 yards long and containing three floors, held together with external girders which form vertical fins on the outside of the building. The "tube" is supported on a series of pairs of massive pillars arranged down the centre of the building. That arrangement gives maximum uninterrupted floor space. From the south flank of the building at first-floor height there extends, along its whole length (about 200 yards), a flat roof, supported by only two rows of pillars. The construction gives a pillarless stretch of 108 ft. with a cantilever section projecting south (over the dispatch dock) and north (over the packing hall). From the north flank of the "tube" a flat roof extends to cover the dock for incoming goods and the storerooms for containers.

The flow of material in the drys factory is, as mentioned, north to south. It is also from the top of the building, where the manufacture is done, downwards by gravity. Girders 170 ft. long which top the square "tube" have been used also to help subdivide it into sections, since the

insulation of dries, which may be carried about by air currents, always provides special problems. In the building are manufactured and packed medicinal (single-dose and bulk) veterinary, horticultural, agricultural, and toilet powders; medicated confectionery; and tablets, pills and capsules.

Manufacturing "Drys"

Arriving at the second floor by lift, the visitor enters the so-called "lozenge" department which, in practice, handles all medicated confectionery, of which pastilles form a large part. A number of fully automatic machines, fed by pastille mass from the floor above (mainly a store) are tended by white-overalled teams. Lozenge mass is formed in mills behind glass screens, mechanically rolled out, and cut into troches for drying. Further east is the effervescent saline section, distinguished by vast mixers attended by operatives wearing breathing pads and by batteries of drying ovens 15 ft. high and many yards long. In an enclosure at the far end is the toilet-powder section, handling talcum, baby and face powders. The machinery includes sterilisers for holding 15-cwt. charges of kaolin and talcum. After passing the tests of the standards laboratory (a section of which is housed on the second floor) the manufactured products travel by chutes to the first floor level for further processing. Bath powder and Phenosan powder, for example, pass into separate dust-proof rooms where they are compressed into bath cubes and Phenosan veterinary "slugs" respectively).

The space available below the first floor ceiling (18 ft.) has been used in places for storing empty containers with the help of mechanical high-stackers. Passing westwards on the first floor the visitor approaches the tablets section, which commences with the hypodermic room.

In the general white-tablet section, a room with an end runner mill and roller is reserved for the preparation of tablet granules. Batteries of multiple-head machines stamp out the tablets. Tablets with coloured bases, such as cascara, or containing dyes, such as methylene blue, are made in isolated rooms. Special tablets are made in small quantities on single-head machines in a room from which pharmaceutical control of the whole tablets section is maintained. A specialist workshop deals with maintenance. Adjacent is the pill section where hundredweight quantities of mass

are made and mechanically converted into pills.

On the ground floor beneath the northern cantilever section of the flat roof, the final products are met by tins, bottles, labels, etc., that have moved south from a storage room on the ground floor of the main building. As in the wets section, the packages progress along belts to the end of the packing table where, after inspection, they are parcelled. To avoid double handling, the parcels are packed straight into bins, which are then removed on electric or hand-pulled trucks direct to the warehouse section, ready for making up the shop orders.

Industrial Health

An important part of the organisation at the works is its industrial health service, with surgeries equipped like hospital outpatient departments throughout the factories. In the largest, about 100 cases are dealt with every day.

The canteen, housed in a separate building situated among gardens at the rear of the factories, can accommodate 2,500 people at one sitting. The rear of the building is devoted to Boots College, a non-vocational institute to which all the company's employees below the age of eighteen go for one day or two half-days each week. The local education authorities provide the staff and plan the syllabuses.

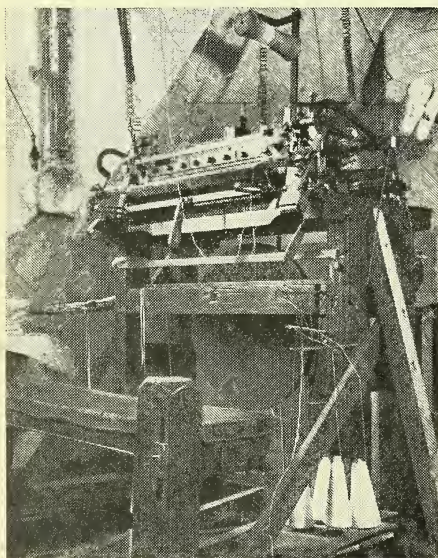
When planning the factories, the designers allowed for five years' expansion within each, with space at the rear for a further twenty years' expansion. Because Nottingham is not a development area, the twenty-year plan could not be put into operation at Beeston, and post-war developments have had to be made elsewhere (see *C. & D.*, 1949.1.500).

Within the factory, harmony is helped by an Advisory Works Committee. In addition, any member may approach a director "on equal terms" through the personnel manager. Around the factory are a number of playing fields. In addition the company has a large athletic ground at West Bridgford. The company was one of the first in Britain to introduce the five day week, which was linked with increased production. Productivity is still increasing, and the most recent figures show that during 1951 it rose by 10 per cent. By adopting mechanical aids, Messrs. Boots consider that they have doubled the moving capacity of a man.

SURGICAL HOSIERY

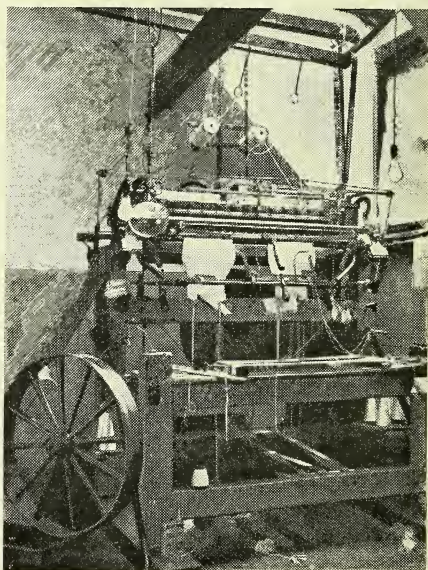
and how it is made

ACCORDING to tradition and the belief of the people of Woodborough, Nottingham, the mechanical stocking frame was invented by a native of Woodborough, the Rev. William Lee (better known as the Vicar of Calverton), in or about the year 1589. Lee presented his idea to Queen Elizabeth I, but failed to convince her of its value and the Court rejected the invention. He was better received in France, and would undoubtedly have established himself there had it not been for the sudden death of his patron, Louis XIII. Lee died impoverished in Rouen. The machine was brought back to England by his brother, and subsequent developments of it were made that produced ribbed, silk elastic, and other types of hosiery. From the original machine were also developed the earliest lace-making machines. Modern machines are power-driven, but they work on almost the same principle as the first hand-operated machines.



A very ancient machine still in regular daily use and giving excellent results. Known as the "one at once," its wood frame is between 250 and 300 years old. The machine was "converted" to its present form over 120 years ago.

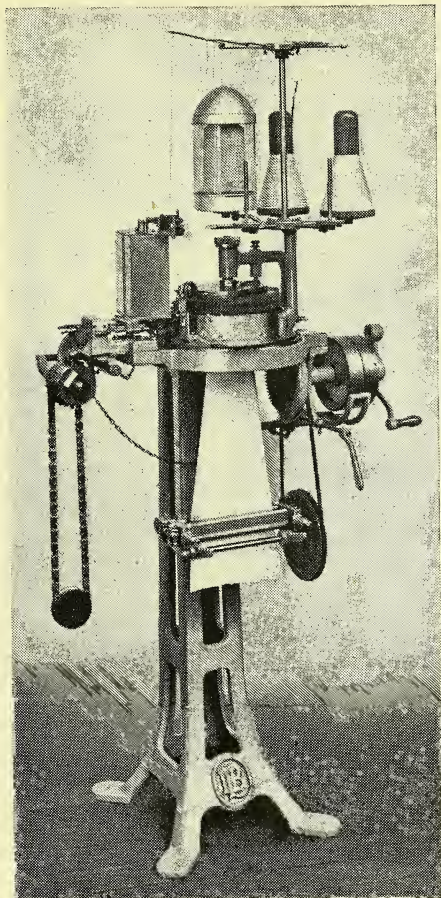
Hosiery is a knitted fabric, and therefore consists of loops. The direction in which a stocking stretches depends on the way the loops are arranged. An ordinary stocking, made without rubber, has some elasticity, but is useless as a surgical garment because it lacks the support that rubber provides. About 1830, in answer



Treadle-operated machine known as the "two at once." Nearly ninety years old, it is still in operation.

to a demand for supporting hosiery, the idea of feeding strip rubber into a stocking frame with the thread was conceived.

The first surgical hosiery machines were hand-operated and driven by treadles. To operate such a machine calls for skilled workmen, and the product is seamed hosiery (i.e., the fabric is produced flat and the stockings are made up by seaming the edges together). Though power-driven machines have been designed that can produce either seamed or seamless garments much more rapidly, the hand-operated machines still have to be used for garments made to special measurements, the power-driven machines being more suitable for making garments of



Modern power-driven circular knitting machine for producing seamless hosiery.

stock sizes. Seamless hosiery is now made on power-driven machines by a circular knitting process very similar in principle to the hand knitting of ordinary socks, using four needles. To produce seamless hosiery of correct shape to fit the limb, the tension of the rubber as it is fed into the machine is controlled, each manufacturer having his own patented method.

The usual type of surgical hosiery is one-way stretch, knitted so that it stretches round the limb but not lengthways. Two-way stretch hosiery, knitted in a different manner, stretches longitudinally as well as round the limb. Since the 1939-45 war, hosiery knitted from

Lastex yarn has been in demand, and two-way stretch Lastex hosiery is used to give relief during pregnancy. It has the advantage that it can be worn under ordinary silk hose. Another recent development is seamed elastic net hosiery.

Surgical elastic hosiery is mainly used for varicose veins, for which purpose seamed stockings are still considered the most suitable. A surgical stocking could, in many cases, be worn by persons who had not been specially measured for it, and its elasticity could make it appear a perfect fit. Unless, however, it were of the correct size and shape it would not be fulfilling its purpose, as it would be exerting an uneven pressure—greatest where the fitting was too tight and least where the fitting was too slack. Not only, therefore, must the prescriber know what is the best type for a particular condition, but the person ordering a stocking against a prescription must give the manufacturer accurate measurements of the limb. For that reason pharmacists who are engaged in the distribution of surgical hosiery should devote to it a separate department, in which they may see their clients in private. Elastic hosiery is mainly distributed through surgical-appliance houses, but pharmacists have always had a significant share of the business.

Effect of N.H.S.

With the advent of the National Health Service, under which doctors are authorised to prescribe surgical hosiery on EC 10 forms, the demand, and hence the part played by pharmacists in distribution, has increased. Distribution under N.H.S. also takes place through hospitals, the suppliers being contractors to the Ministry of Pensions (they are mainly surgical houses employing experienced fitters).

The claim to have originated the manufacture of surgical hosiery by the incorporation of strip rubber is made by J. H. Haywood, Ltd., Nottingham, who still use at their works the hand-operated machine with which the first surgical hosiery was made in 1830. The wooden framework on which the working parts are mounted is 250-300 years old. A former employee of the company was the novelist, D. H. Lawrence, in whose novel "Sons and Lovers" the central character takes up employment with a firm of surgical hosiery manufacturers. Lawrence is believed to have based a number of the characters in the book on other employees of the company with whom he came into contact.

ALMOST EXACTLY A HUNDRED YEARS AGO, ON JUNE 30, 1852, THERE WAS INTRODUCED

Britain's First Pharmacy Act

By Kalamos

THE Pharmacy Act of 1852 may be described as the outcome of two convergent lines of thought. One of the earliest undertakings of the Council of the Pharmaceutical Society after its formation in 1841 was the establishment of a school of pharmacy. At an evening meeting of the Society held on January 12, 1842, it was announced that arrangements for the education and examination of students were in hand. A course in botany was started in May; other courses followed in October of the same year. There were two examinations, a minor for associates of the Society, and a major for members. The thoughts of the founders naturally turned to the status of successful candidates: only one further step was required to make the registration of major men compulsory when legislation could be obtained.

A second line of thought was suggested by knowledge of conditions for the practice of pharmacy on the Continent. The Kremers-Urdang History of Pharmacy (2nd edition) records many facts about these conditions in European countries and in the United States. A small selection must suffice in this brief survey. In France, examinations before practice were compulsory in Marseille in the thirteenth century. In Prussia, qualifying examinations were introduced in 1725: the system gradually spread to other German states. In Italy, a Venetian college required, in 1565, eight years' training fol-

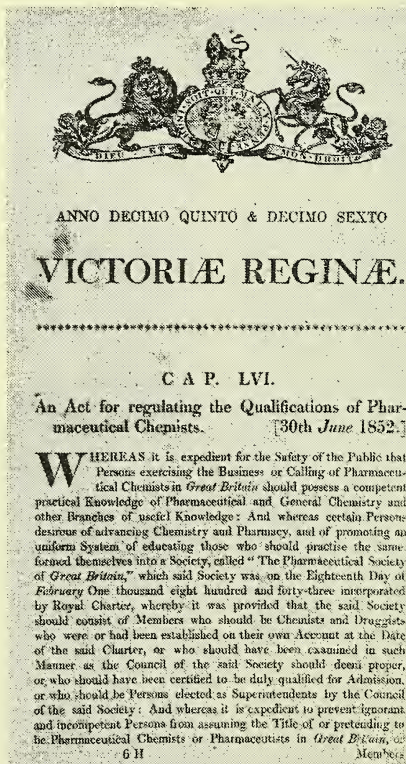
lowed by a "rather rigid" examination. In parts of Spain, a decree of the year 1272 ordered candidates for pharmacy to submit to an examination. We cannot suppose that all the members of the first Council of the Pharmaceutical Society of

Great Britain were ignorant of such facts. We know, for instance, that Mr. T. N. R. Morson was acquainted with Vauquelin and other distinguished French chemists.

Conditions in 1852

Differences between conditions in Britain in 1852 and those of the present year must not be over-emphasised. "The Annual Register" for 1852 stated that its commencement "found the British Empire in a generally prosperous and tranquil condition." Yet there was another side to the outlook. Railways were in a primitive state; accommodation was poor, and accidents were numerous. The work of sanitary reformers was by no means ended. Opinions were sharply divided on

factory legislation. In Parliament, the ministry of Lord John Russell resigned after an adverse vote, and was succeeded by one formed by the Earl of Derby. One of the chief topics of public discussion was the future of the Crystal Palace, standing empty after the Exhibition of 1851. In June a company with railway directors at its head raised a capital of £500,000 for removing the building to a site in Sydenham. In the same month a daily time signal was first sent by electric current



from Greenwich Observatory to a ball in the Strand.

Jacob Bell's Pharmacy Bill

Near the end of 1850 Mr. Jacob Bell was elected member of Parliament for St. Albans. On June 12, 1851—a week after the Arsenic Act had received the Royal assent—he introduced a Bill for regulating the qualifications of pharmaceutical chemists. On comparing the details of this Bill given in Bell and Redwood's "Historical Sketch" with the clauses of the Act passed in the following year, the differences do not appear to be substantial.

The second reading of the Bill on July 2 must have been a disappointment to its author. After his opening speech (occupying four columns in "Hansard's Parliamentary Debates"), one other member supported his motion and two opposed it. The member in its favour said that some tradesmen having "the insignia of a druggist's trade" did not know the difference between oxalic acid and Epsom salts or between iodine and aconite. An opposing member criticised the Pharmaceutical Society. Many chemists had been induced by it, he declared, to pay £2 2s. for "a fine label, which they put in their window, with the hard words 'Pharmaceutical Chemists' upon it." People "had lost all faith in these gaudy labels." The Home Secretary (Sir George Grey) thought that what had taken place would convince Mr. Bell that he was rather too sanguine in supposing that the Bill would give general satisfaction. He had intimated to the author of the Bill privately that there was no chance of its passing so late in the session. He thought this branch of the subject should not be considered, except in connection with the medical question generally, and felt very strong objections to creating in the Pharmaceutical Society an exclusive right to determine who should and who should not be dispensing chemists. If Mr. Bell proposed to make extensive alterations in the Bill, he (the Home Secretary) had no objection to it being read a second time *pro forma*, on the understanding that it should not be proceeded with during the session. Mr. Bell said he had great pleasure in accepting Sir George Grey's "proposition."

The Bill, as amended, was read the first time on February 12, 1852. Its second reading on March 17 went through without much discussion. Mr. Bell (who was

given another four columns in Hansard) presented petitions in its favour from the president and censors of the Royal College of Physicians of London; the president, vice-president and council of the (London) Royal College of Surgeons; one signed by 150 "eminent" London medical practitioners; and numerous ones from medical practitioners, chemists and others in various parts of the country. Provision for Government supervision of by-laws and regulations had been struck out of the original Bill, but could be reintroduced "if it were thought right." The proviso that pharmaceutical chemists should not be members of the medical profession or practising under a medical diploma had been introduced by the desire of the apothecaries of London. The new Home Secretary (Mr. Walpole) said that Clause 2 "gave very great and irresponsible powers" to the Pharmaceutical Society in making by-laws and regulations. He hoped that the Select Committee to whom the Bill was being committed would be very careful in the construction of this provision and also of Clause 15, dealing with penalties for "assuming the business of a chemist and druggist." Another member, Mr. Bouverie, thought the Bill was intended to turn chemists and druggists into apothecaries. Mr. Bell disputed this and was about to explain further; but being called to order, resumed his seat.

Final Stages

The further proceedings were for the most part formal. The Select Committee examining the Bill consisted of Jacob Bell and twelve other members, five to form the quorum, with power to send for "persons, papers and records." The Bell and Redwood narrative records that "much" evidence was taken; that opposition from medical bodies in Edinburgh and Glasgow had already been withdrawn; that toxicology as an examination subject was deleted to meet the wish of the Society of Apothecaries of London; and that the term "pharmaceutical chemist" was to have included chemist and druggist and every other term denoting a dispenser of medical prescriptions and vendor of medicines except a registered medical practitioner. The Bill was reported to the House of Commons on June 12, and had its third reading on June 17. In the House of Lords it went quickly through the requisite stages, without debate. The Royal assent followed on June 30.

The Commentaries of Matthiolus

BY HOWARD BAYLES

FOR about 1,500 years the herbal of Dioscorides, written in Greek during the first century of the present era, was the basic textbook on materia medica; Dr. Agnes Arber remarks, in her book on her-
bals, that discussion on his botany "formed an integral part of almost every sixteenth-century herbal." The most famous of the commentators on this classic was Pietro Andrea Mattioli, usually known as Matthiolus. He was born at Siena in March 1500/01, studied medicine at Padua, and obtained a doctorate in 1523. After practising in Siena for a time he went to Perugia, then to Rome, and then to Trient, where he died in 1577. The biographical dictionary of A. Hirsch contains the dates of six editions of a Latin translation of the Dioscorides' work; they range from 1554 to 1565. An Italian translation dated

the cyathus 3xj. ̄iv. Then follows "Olei," with 9 lb. to the gallon and 3xviij. (probably a misprint) to the cyathus. Lastly comes "Mellis," having 15 lb. to the gallon and 3xx. to the cyathus. The names of the substances described are given in the Matthiolus-Bauhin edition in Greek, Latin, Arabic, Italian, Spanish and French. In this brief survey it must suffice to sample each of the six books.

Ebony

In Book I ebony may be selected as a fair specimen. Dioscorides mentions two kinds, the "Aethiopic," which is "black, & not having veins," and the Indian, less recommended and showing "streaks of white and yellow running between, as likewise many spots." Adulterants are named and described. Ebony is used, we



Vipers: long esteemed in medicine and pharmacy.

1544 comprises only the first five "books" of the original; the Latin editions comprise six. Several translations into various languages also appeared, and Matthiolus had other treatises to his credit. For the English text of Dioscorides I have drawn mainly on Dr. R. T. Gunther's recension of Goodyer's translation of the first five books, published in 1934. For the commentaries I have used a Latin edition edited by Caspar Bauhin. A table of measures for liquids, with relative weights, in this volume is worth a mention. "Vini, Aceti et Aquæ" have weights in common: for instance, the gallon weighs 10 lb., and

read, for "eye-medicines" by infusing it for a day and a night in Chian wine or in water. A coticula (a small mortar) can be made of it.

Matthiolus comments here, as elsewhere, with a wider scope than that of his classic. He discusses the uses of guaiacum; some people, he notes, consider it to be a species of ebony. The virtues of china (china) and of "zarza parilla" follow: directions for a decoction of the latter are given.

Spavins of Horses

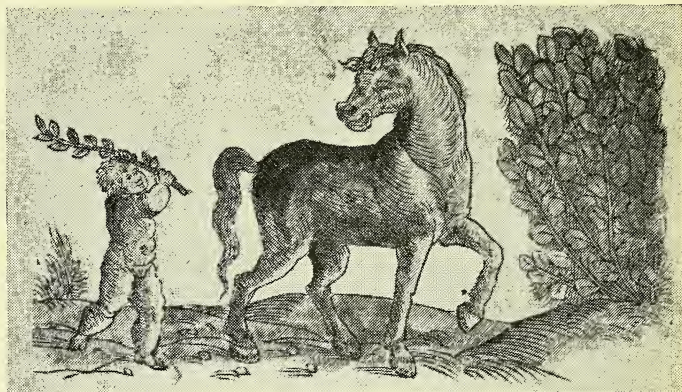
Leichenes Hippon, in Book II, are briefly described as "that obdurate substance,

which grows hardened at their knees, & at their hoofs, which being beaten small, & drank with vinegar, are said to cure Epilepses."

Matthioli often cites other authors: in this instance he avails himself of three. Pliny, he tells us, mentions concerning these calli that, being crushed and dropped

dragon's blood and myrrh are added. Socotrine aloes ("succocitrina") is the best; then comes hepatica; lastly there is "caballina," black with horrible taste and smell to be "veterinariis reliquenda." Some now brought from Mexico is common in German gardens. (This may have been a species of yucca.)

Spavined Horse: spavins had various therapeutic uses.



with oil into the ear, they alleviate toothache. Taken internally for forty days with wine, plain or sweetened with honey, they expel gravel. Galen adds, and Paulus Ægineta confirms, that they are of service against the bite of any animal.

Aloe

In Book III we learn that the aloe grows in India, "from whence also ye extracted juice is brought. It grows also in Arabia, Asia, & in certain sea-bordering places and Islands." Aloe from these latter sources, however, is "not good for extracting juice but fitting for ye conglutinating of wounds, being laid on when it is beaten small." Appearance is a guide to quality: "the black and hard to be broken" should be rejected. Adulterants are named. For eye medicines it should be roasted in "a cleane and red hot earthen vessell."

Matthioli enlarges on this theme. There is no doubt, he claims, that the aloes used by apothecaries is the true kind. In many places in Italy, he continues, and especially in Rome and Naples, species of aloe are seen in vases and pots filled with earth, adorning windows, rather for their appearance than for any medicinal use. A lengthy summary of the opinions of Galen and Mesue follows. Mastic, cinnamon and myrrh are adjuvants; for persistent ulcers

Colchicum

Dioscorides names in Book IV three synonyms for colchicum—ephemerum (in Greek, *ephemeron*), *agrestis bulbosus*, *agrestis iris*. He distinguishes between colchicum and ephemerum, though I have formed the impression that one is a variant of the other. There is, however, a therapeutical difference. After describing the appearance of colchicum he continues: "It grows very much in Messinia, & at Colchos. But being eaten it killeth by choking like to ye mushrumps." No medicinal use is indicated. Ephemerum can be used as a mouth wash or an application, though not internally. "The root of this is a remedy for ye toothache, by way of collocation;" the leaves, steeped in wine and applied to the skin, "do dissolve Oedemata, & tumours, having not yet an humour."

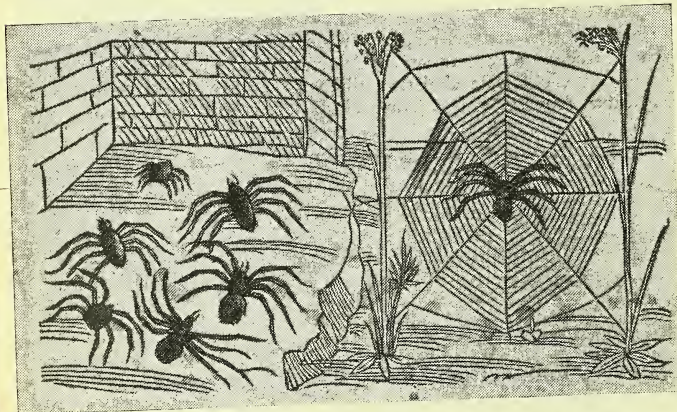
Matthioli emphasises the poisonous nature of colchicum and ephemerum, which he apparently regards as identical. He holds that what is described is so pernicious that whoever takes it dies in a day: hence the name ephemerum. For this cause, he continues, Dioscorides handed down the description, lest anyone should imprudently eat it in place of bulbos (i.e., a bulb of an edible species). Nevertheless the Arabs, and all who fol-

lowed them, did not trust but neglected this divine warning. Distinctions between colchicum or ephemerum and hermodactylus are added.

This book contains one of the very few recognitions of magic left on record by Dioscorides. The passage, referring to the root of black hellebore, was quoted in *THE CHEMIST AND DRUGGIST*, 1942, II.229. It is to the effect that those who dig the root pray to Apollo and Æsculapius, observing at the same time the flight of an

boil ten times; & having cooled it, pour it into another vessel." A cautious statement follows: "It is thought [...] being taken, to expel gross humours." Other uses were for "ye Arthriticall & Epilepticall," for persons bitten by a viper called seps, and for those who had drunk meconium or ixia.

Matthiolus states that neither Galen, in his three ways, nor Mesue, in his way, used sea water in his preparation. Vinegar of squill, which follows oxymel in this



Spiders: used in medieval medicine.

eagle. "For ye bird causeth death, if so be he see ye digging of ye Hellebore: but one must dig it with all celerity, because there is an headach by the exhalation. Whence for prevention, they who dig it eat garlic and drink wine . . ."

Wines and Minerals

Book V opens with a typical example of the expansiveness of Matthiolus. The introduction by Dioscorides occupies, in the edition used, four and a half lines of print: his commentator needs more than five pages to deliver an opinion. Wines in this book are grouped with vines and vinegars, minerals with metals. Many herbs, singly or in combination, were the active ingredients in medicinal wines, some of which contained sea water. It will be remembered that the internal administration of aqua marina continued till the eighteenth century or a little later.

Oxymel was made from vinegar 5 heminas, sea salt 2 lb., honey 20 lb., water 10 heminas (though I suspect that all these quantities are not correct; Good-yeer or his Greek original may have slipped). The process is: "Seeth it until it

book, is remarkable for the length of time occupied in making it—forty days' drying of the bulb and another forty days' maceration in the menstruum. Alternatively, it can be macerated for six months without preliminary drying. Matthiolus prefers thirty days' maceration during the dog days. Pythagoras, as reported by Galen, held that anyone taking it—regularly, it may be supposed—would have long life and good health. He himself lived to the age of 117, and "quod fortasse vir philosophus erat, mentiri nescius."

Sulphur, Dioscorides remarks, grows abundantly in Melos and Lipara. Its medicinal uses begin with internal administration for coughs and asthma. It "heals also ye strokes of Scorpions being mixed with Rosin, but with vinegar it heals ye stroke both of ye dragon & of Scorpions . . . & it is convenient for ye padogricall, being smeared on with nitre and water; & it cures ye hardness of hearing, ye smoke being drawn up (in haste) through a tunnel; & being suffumigated (it awakes) ye Lethargicall . . ."

The commentary is mainly a description of methods of purifying crude sulphur.

Poisons and Venomous Beasts

Book VI is in one respect the most interesting of the books: it discloses the toxicological knowledge both of Dioscorides and of his commentator. In his introduction the Greek author dwells, as he well might, on the difficulty of deciding by symptoms what poison a patient has taken.

The comment of Matthiolus begins with a tribute to his classic: "Magnum sane, & immensum beneficium acceptum referre debent sapientissimo Dioscoridi, non solum Medici orbis universi, sed etiam universa simul humana natura . . ." One passage in this exordium describes tricks by itinerant vendors of spurious theriaca in market places. They either swallowed arsenic or realgar before an audience, eating plenty of salad first and taking an emetic later, or ate an article of confectionery shaped to resemble a piece of arsenic. The poisons and deadly beasts described by Dioscorides include aconite, hemlock, white

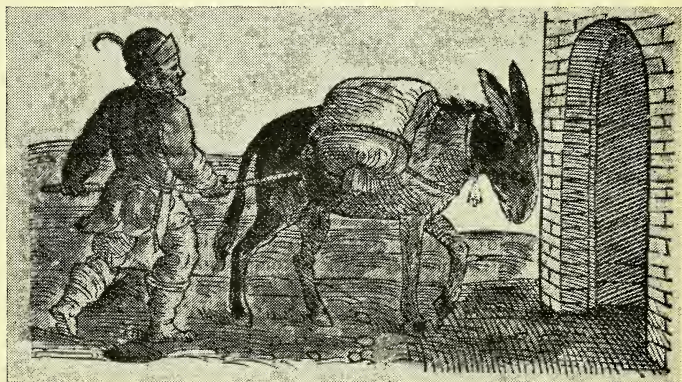
"in aliis quam plurimis simplicibus medicamentis." Among the few more remedies suggested are cardamon or storax internally, and a plaster of wheat flour and wine applied to the stomach.

Scorpion

One symptom of a dangerous bite by a scorpion, Dioscorides states, is that the patient's hair stands on end. A plaster of sulphur and resin is helpful. The sufferer should take aristolochia or its bark, $\mathfrak{z}\text{ij}$., in wine. Bruised gentian or pennyroyal is good. The best remedy, however, is to take frequent baths so as to perspire.

Matthiolus points out that some scorpions are more venomous than others. His editor queries one statement. When Matthiolus mentioned scorpions with nine knots in their tails, he must, Bauhin suggests, have meant those with seven knots, for they have not more. Althæa root is one remedy; another is an application of snails

A Source of Milk:
animals apparently had
rough treatment.



lead, gypsum, mercury, marsh frog, elaterium, mad dog, and viper.

Hyoscyamus

To a description of the effects of a toxic dose of hyoscyamus, Dioscorides adds that they yield easily to treatment by medications. He names among antidotes water sweetened with honey; milk (especially that of the she-ass); decoction of dried figs; cucumber seeds; wild chicory.

Matthiolus cites classical authors. According to Avicenna a person poisoned by henbane may bray like an ass or neigh like a horse. But the commentator thinks that Avicenna has confused henbane with hemlock, a kind of mistake he has made

with their shells, which removes the pain quickly ("confestim"). Oil of scorpions or mice cut up ("domesticos mures concisos") may also be used externally. Internally, equal parts of powdered cumin, melanthion (*Nigella sativa*) and seed of vitex, $\mathfrak{z}\text{ij}$., in wine, may be taken. Matthiolus ends by remarking that, as there are so many good remedies for this trouble, he will not dwell longer on the subject but will leave it to the judgment of the "peritissimi"—a good policy for authors.

All illustrations in this article, by courtesy of the Wellcome Historical Medical Library, are from the Latin edition of the Commentaries of Pietro Andrea Mattioli published in 1554.

LEONARDO AS ANATOMIST

By K. D. Keele, M.D., F.R.C.P.

FOR hundreds of years after his death, Leonardo da Vinci's fame rested on his work as an artist. Only within the last seventy years have the contents of his manuscripts been disclosed, while his studies in anatomy have been published only in the present century. Leonardo's interest in the human body was undoubtedly at first that of an artist, which he shared with contemporary renaissance artists such as Michelangelo and Durer. Unlike them, Leonardo's studies became through the years progressively more scientific, until he was performing researches in pure anatomy and physiology. His anatomical illustrations display a combination of his incomparable gifts as artist and scientific genius.

There are now available some 750 anatomical drawings, representing probably only a fraction of the total he made in his lifetime. Before his day, anatomical drawings were few and crude. Leonardo's drawing of the main viscera of the body (Fig. 1) gives an idea of his progress. In it he shows the correct relationship of the heart, liver, spleen and kidneys, etc. In his drawings of all these organs, however, there are still some errors that are in large part corrected in his later drawings. The heart, for example, is shown with what Leonardo called "chains" crossing both the ventricles. Those, he considered, prevented the heart from overstretching itself in dilation. Later, he reduced

the bands or chains to one in the right ventricle, now known as the "moderator band." It has been suggested that that structure should indeed be called "the band of Leonardo." It will be noticed, also, in this figure, that the vena cava is shown arising from the liver—another error Leonardo corrected later on. The error is important, however, since it illustrates the ideas of anatomy that came down from the great Galen, the Graeco-Roman physician who lived in the 2nd century A.D. It was Galen's idea that blood was formed from the food, in the liver. That theory Leonardo accepted.

In his investigations of physiology, Leonardo looked upon the structures of the human body as mechanical "instruments." For that reason (and no doubt because of his artistic interests) he concentrated most on the muscles and bones and their movements in relation to one another. In his day, chemistry existed only in the guise of alchemy, closely linked with astrology, against which superstition Leonardo wrote extensively in his notebooks. He was of opinion that chemical changes, such as he

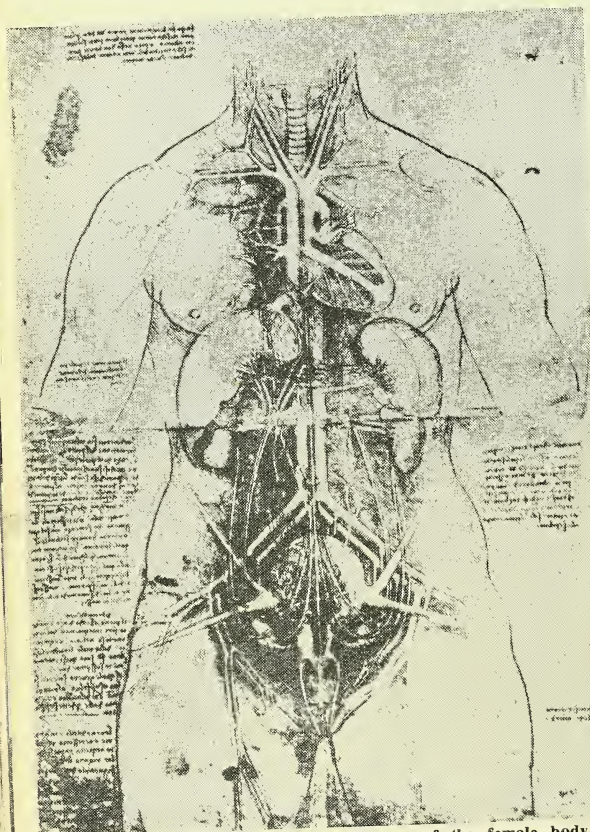


Fig. 1. Leonardo's scheme of the organs of the female body.

saw being brought about in the furnaces of the alchemists, were too crude to have their analogies in the human body. "Alchemy" he says "works by the simple products of nature, but its function cannot be exercised by nature herself, because there are in her no organic instruments with which she might be able to do the work which man performs with his hands, by the use of which he has made glass, etc." It is consistent with this view to find Leonardo critical of the kind of polypharmacy that existed in his day; nor did he believe in the astrologer-physicians who administered that kind of treatment. Of the use of alcohol he says "wine is good at table but water is better," and his opinion of the astrologer-physicians is made very clear in the words, "Strive to preserve your health, and in this you will the better succeed in proportion as you keep clear of physicians, for their drugs are a kind of alchemy concerning which there are no fewer books than there are medicines."

An Amazing Ingenuity

In his research into the anatomical problems of the human body, Leonardo showed an amazing ingenuity, well exemplified in his work on the brain. No one before him had an accurate knowledge of the shape and size of the cerebral ventricles. Leonardo, with his experience in casting and moulding, hit upon the idea of injecting wax through the third ventricle into these cavities so that when cooled and solidified it showed their shape and size. The procedure is illustrated in Fig. 2. The writing on the page gives detailed instructions for performing the injection. Leonardo notes the necessity for inserting two small tubes in the region of the lateral ventricles to let out the air displaced by the wax being injected into them. It will be seen that the third ventricle is rather large, and inside it he has

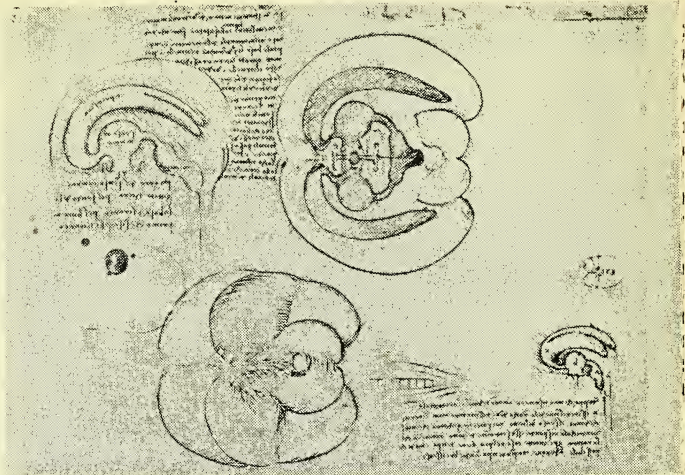


Fig. 2. Leonardo's wax case of the brain.

written in his mirror-writing the word "senso commune." This was the place where Leonardo located the soul of the body, since it is here that "all the sense come together," a reference to the fact that the nerves of sight, hearing and other cranial nerves bring all their sensations to this region. From here, too, he considered that voluntary movement originated, so that "the tendons with their muscles serve the nerves even as soldier serve their leaders, and the nerves serve the senso commune as the leaders their captain, and the senso commune serves the soul as the captain serves his lord. And the senso commune is the seat of the soul . . ."

From that point Leonardo goes on to discuss how muscles are stimulated by nerves, and analyses in great detail how muscles contract, a subject on which he reaches a clear understanding, appreciating that when muscles contract they thicken themselves "and in this process of thickening they fill out the fascia and make it hard, and they cannot be lengthened out unless the muscles become thinner, and not becoming thinner they are a cause of resistance and of making strong the aforementioned fascia in which the enlarged muscles perform the function of a wedge. In his dissections he tested the actions of all the muscles he found by pulling their tendons in order to observe their movement and to make clear to himself their origins and insertions. It was in this way

that he discovered that when a muscle contracts its antagonist must relax. This he demonstrated clearly in relation to the movements of the hip, and in so doing anticipated the great work performed in our own day by Sir Charles Sherrington.

But of all the muscles in the body the heart provided for Leonardo the lifelong challenge to his powers of research. His discoveries regarding the atria, the papillary muscles, the valves, and coronary arteries were all epochal in their importance and apparently they continued up to his latest known dissections, performed about 1513—that is within six years of his death. Like so much of Leonardo's great work, however, that research was not

completed, so that Leonardo did not arrive at the conception of the circulation of the blood as demonstrated by Harvey over 100 years after his death.

Leonardo's whole life was devoted to the arts and sciences, and he himself refers to the qualities necessary to perform such anatomical illustrations as he achieved. They are the qualities of courage, draughtsmanship, mathematical knowledge, and patience, "concerning which things" he says "whether or no they have all been found in me, the 120 books that I have composed will give their verdict yes or no, in these I have not been hindered by avarice or negligence but only by want of time."

A Trade Card of the 1840's

WHILST it is well recognised that the apothecary was, in ancient times, a grocer, the trade card of a "druggist, tea dealer, grocer, etc.," is sufficiently rare to be worth reproducing. Taken from a Birmingham directory of 1845 (four years after the foundation of the Pharmaceutical Society) it was the subject of a paragraph in Peter Hazlitt's column in the "Birmingham Weekly Post" on January 1.

A curious feature is that while the trade card gives the address as "No. 2 Dale End," the body of the directory gives it as "No. 1" but, as Hazlitt remarks, the numbering was erratic at that time." It will be

seen that the artist Devonshire, while giving commercial prominence to the "tea dealer, grocer, etc.," has concentrated his artistic efforts on the more colourful drug dealer, giving central position to the pestle and mortar and letting his fancy roam (one opposes) on the laboratory and stockroom. In earlier times a distinction was customary between the chemist who prepared the medicines and the druggist who sold

them. At retail level the distinction had already largely disappeared when the Pharmaceutical Society was founded. John Welch, while not claiming in his title to



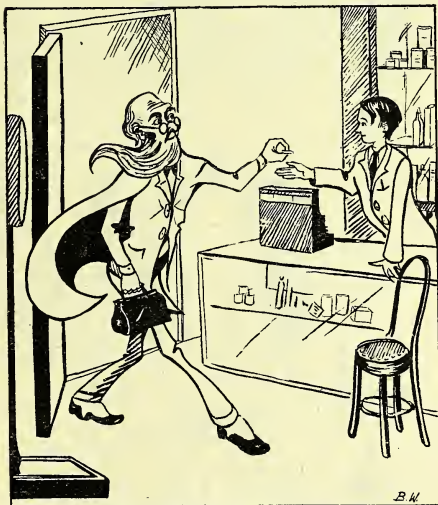
be chemist as well as druggist, was clearly making that claim in his slogan and in the illustration he commissioned his artist to use as embellishment. Whether the slogan "Physician's Prescriptions accurately prepared" would get by the Statutory Committee today is questionable, but the trade card may be admitted to be a reasonably restrained example for its day and age.

Into every pharmacy in the country comes that regular customer who, from time to time, buys the oddest of things. A few such characters are sketched in

ODD BUT REGULAR

by Cledwyn Hughes

IN our strict professional moments it is not for us pharmacists to reason too much why an old man buys a gross box of flypapers or question the uses to which a dainty young typist can put Bismark-brown. But this is the summer, the warm time of the year when even the most cautious of us can venture in our imaginations after that odd but regular customer; guess a little as to what he or she does, and be amused by the truth or the untruth of it.



"Change this, my boy," he said.

The first odd customer I ever met was in a Welsh market town. I was an apprentice, and after having spent the morning in that time-honoured joke of grinding corks in a pestle and mortar, I was put to stand beside the first assistant on the counter to watch and learn. An ancient gentleman came in. He was very old, but held his head much like a banner, with a long white beard waving gently over his shoulder from the speed of his spindly legs. He wore a cape and carried a small black Gladstone

bag, such as the Victorian doctors used. The first assistant was very respectful to him and called him "sir." The old man had an airy sort of voice, much as if his breath and his words did battle in his larynx, neither winning outright.

"Change this, my boy," he said to me, ignoring the first assistant.

Thirty Pennies from the Till

"This" was half a crown. I had been warned that the till was like a high altar and I looked for help to the first assistant. He smiled benevolently, opened the drawer and started counting copper. He counted thirty pennies on the counter and handed them to me, taking the half-crown in exchange. The old man checked them and then went to the doorway of the shop and put one penny into the slot of the weighing machine. Satisfied, he went away, the twenty-nine coins jingling in the pocket of the cape.

The first assistant told me then how the old gentleman had come into the shop every Monday for the past twenty years had changed half-crown to thirty pennies and each week had used one of these with which to weigh himself. He was, it seemed the undertaker in the town and, although his son mainly ran the business, the old man helped a good deal. The pennies he used as a means of closing the eyes of the dead: a favourite way with the old school of undertakers.

Another odd and regular customer I met in the same shop was an old lady who each month bought a pint of spt. ammo. aromat. She had a stoppered bottle for it and a varnished label. I was never able to find out exactly what she did with it. Perhaps she dosed herself, with affection against the daily fainting-fit that never came.

Then there was a young woman who came to a shop in which I worked on Merseyside; she brought an old treacle tin which had to be filled each fortnight with white Vaseline. After a few months

we became quite friendly, but she would never hint what she did with this Vaseline bought in bulk. Perhaps she was some great practical joker, greasing landings and maybe streets, as others chalk up slogans?



She brought in an old treacle tin.

Another young woman came to the same shop to buy baby food. She bought such considerable quantities of it each week and for so long a period that I had, it being war-time, to inquire did she really use all this for a baby? It seemed she didn't. She was, if you please, a hostess in a dance hall down by the docks and she was very fond of her beauty. She had a milk-bath each day, dissolving the dried milk in the hot water.

Distilled Water, $\frac{1}{2}$ fl. oz.

Back in another Welsh shop I served a man with a half-ounce of distilled water on the Thursdays of several months. For a while I used to worry, in case he should think he was buying some potent medicine, asking as he did for aqua destillata. But one day he told me what he used it for; he was an enthusiastic amateur weather observer and, before pouring the day's rainfall into the measuring cylinder, he washed out the gauge with distilled water. "Just a few drops," he said. I took pity

on him then and gave him an eight-ounce bottle.

There was a minister I used to serve, who bought inf. quassia. He used it for his feet. I was surprised that a minister should be troubled with his feet, but it seems that pulpits are draughty, cold places and give many ministers and clergy bad feet. But I have never heard before or since of inf. quassia being used as a lotion.

Professional Purposes

A dentist in a English shop bought regularly two packets of Cooper's dip each month. He signed the poisons register, "to be used for professional purposes." I was never able to discover the real use he made of the dip. Perhaps he had some great poisoning scheme on hand? Or perhaps he just used it as a weed-killer.

And there have been the regular customers who came in with strange scripts to be made up at regular intervals; a hunting man who had a brown boot polish made up from beeswax, white wax, turps, curd soap, and coloured with annatto; the major who had a scarlet coat cleaner made up with us of pot. binox., liq. cocci, with water to one Vichy bottle; the owner of kennels



I was surprised that a minister should be troubled with his feet.



Brought his collie dog to be weighed twice a year on the baby scales.

who had a dog shampoo made from soft soap, cresol and S.V.M.; a rat-catcher in a Shropshire town who had a poison made up from phosphorus, carbon bisulphide, lard, sugar and oil of aniseed. In the same town an amateur taxidermist had powders of nutgalls, arsenic and camphor. It was in that same town that I was first initiated into the mystery of those three letters: A.D.T. It was a powerful mixture ordered by a local G.P. for his more tire-some patients. In it were sodii bicarb., pulv. pro pil. rhei co., cretæ præp., turmeric, myrrh, tinct. opii, black pepper, camphor, ammon. carb., quin. sulph., ol. cinnamom. and ol. cassiæ.

Most country pharmacies have amateur "vets" calling on them for supplies, especially in Wales, where they are called farriers. Usually these gentlemen confine their activities to the hill farms, doing castrations, treating ringworm and cleansing cows. One woman practised this trade in the country around the Montgomeryshire shop where I served my apprenticeship. Regularly she had a castrator's ointment made up from cupri acetate and adep. benz. She had a considerable knowledge of the herbs of the countryside, and treated humans as well as animals. I have known her have some success with some of her treatments. She used to use the sun's rays, concentrated through a burning

glass, for treating external cancers. She seemed to have cures of a sort with this method, too. I have often wondered whether there was some concentration of the invisible solar radiation?

Manager Made Her a Graph

And there are, of course, the weight-complex customers who come in regularly. One large lady in a North of England shop had a graph made by the manager. I don't think it was much consolation to her. During the months I was there it soared upwards, Himalaya-like. Another "weight customer" I remember was a quiet, middle-aged Welsh farmer who brought his collie dog to be weighed twice a year on the baby scales. The dog was far more co-operative than most babies and the farmer certainly more so than most anxious mothers. I often wondered why the farmer had the dog weighed? The collie was usually brought in a few minutes before the door was locked on early closing day. Doubtless my apprentice master regarded it as bad business to be seen weighing a dog on the baby scales!

There are, too, the regular self-prescribers; rather ill people of a nervous and hypochondriac type who don't believe in the goodness of their doctor or his prescriptions. Often they have old-fashioned scripts made up. Once I was asked to make oil of earthworms which, on looking up, I found needed earthworms and sherry for its manufacture!

So they come, some rather sad, some rather gay; the strange customers who haunt the pharmacy at regular intervals. They are like friends the way we know their faces, yet their private lives remain utter secrets. We can only guess to what strange uses they put the oddities they buy, but perhaps the truth would be even more remarkable. I have forsaken pharmacy now for the less dangerous bogs of literature. And yet the faces I remember from my pharmaceutical days have given me many a plot. Certainly if the human heart is ever seen in its sufferings and its delights it is in the pharmacy; that shop which alone of all its neighbours sells life and death and for that reason many of its customers must be, surely, nearer heaven or hell. A sobering thought when next we have to turn away the tired woman who wants cocaine snuff, when we have to shake our head at the laughing-eyed young girl who wants to buy dextrodine so that she can win the cup at the tennis club.

"A Jolly Sort of Existence"

TWO HUNDRED YEARS AND MORE OF COMMERCIAL TRAVELLING

By John Camp

A COMMERCIAL traveller entering a pharmacy at the height of a busy morning's dispensing is hardly likely to be greeted with enthusiasm. "Another p.p.!" mutters the chemist, feverishly trying to write a label. "Tell him to call back!" Mentally damning all commercials, the busy pharmacist may wonder whose is the devilish brain that invented a system capable of causing a succession of men with order books to disorganise one's entire day! The man in the shop can't be blamed for feeling sore. In this country today there are some 100,000 commercial travellers distributed throughout a wide variety of trades. But the enormous number of lines carried in a modern pharmacy, with an appropriately large number of firms to deal with, results in there being a higher proportion of travellers' calls on the retail chemist than on any other type of trader.

The modern representative, with his 60 h.p. car, his smart sample-case and his beams of technical literature, is by no means a recent innovation. He is the product of a commercial development that began, no doubt, when the first primitive man ventured from his cave to barter a few hides with his nearest neighbour, and though the pure commercial traveller, carrying only samples and taking orders for late delivery, is much more recent, he is still part of a tradition that goes back good two hundred years.

State of the Roads

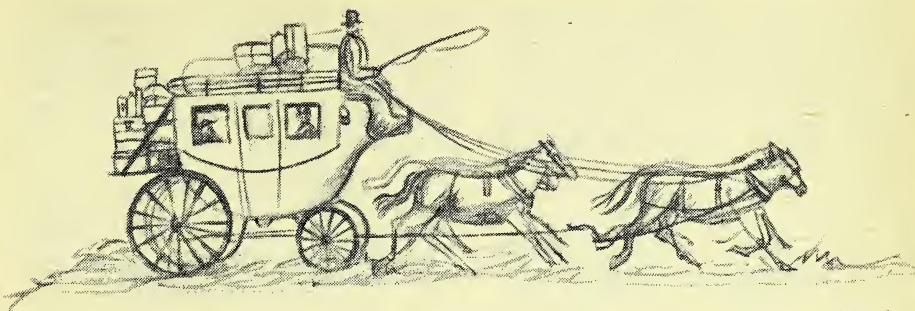
The distribution of goods from manufacturer to consumer is intimately bound with the history of road transport, which in turn has a direct bearing on the development of commercial travelling. Although the Romans had left a good system of roads, the secrets of road-building and maintenance had been lost on their departure, and the highways of England steadily deteriorated through successive centuries. Occasional attempts were made to improve that state of affairs, but it was not until immediately after the coronation of Mary Tudor in 1555 that the first Highway Act was passed. That Act put responsibility for the upkeep of

local roads on each parish, called for the appointment of a "surveyor" from each village, whose duty it was to ensure that every able-bodied man contributed his share towards keeping the roads in good repair, and ordained that he should read out on Sundays, from the pulpit of the parish church, a list of all parishioners who had not conformed! It is not surprising that that unpopular job was rarely performed with any efficiency, and that the roads remained in a shocking state.

Although one of the first coaches seen in England had been presented to Queen Elizabeth in 1565, coaches as a form of travel remained unpopular for many years. There was, all the same, an increasing flow of travellers on the roads—country gentlemen, travelling preachers, doctors, judges and barristers on circuit, but most preferred travel on horse-back. Goods were transported by pack-horse trains, the



"A man who travels about the country on horseback, with saddlebags stuffed with samples."



The era of the stage coach was the heyday of the commercial traveller of the old school.

fifty or sixty horses being loaded with panniers full of goods destined for the shops and fair-grounds of the provinces. The leading horse carried a bell, which chimed to warn other travellers at corners of the narrow ways. So journeyed the clay and china from the Staffordshire potteries, the coal from the developing Black Country, and cloth from the Dales. But the commercial traveller was still unknown. Not until about 1750 are travellers carrying samples, as distinct from the goods themselves, first heard of. Understandably enough, they were in the cloth trade, an industry that had already established itself as the backbone of English commercial life. The first travellers were called "riders-out" but the name was soon replaced by "bagmen," by which they were known for the next hundred years.

Coming of the Turnpikes

A dictionary of 1760 describes the bagman as "a man who travels about the country on horseback, with saddlebags stuffed with samples, living a very jolly sort of life at the inns which he frequents." It may well have been "a jolly sort of life" at the inn itself. It was by no means jolly on the road. Highwaymen abounded, and there is more than one instance of an ostler's being in league with a confederate and tipping him off when a traveller at the inn was due to cross a particularly lonely piece of common or moorland. As the highways improved with the coming of the turnpikes, commercial travelling became more common. In the drug trade, however, few firms were manufacturing pharmaceuticals on a large scale, and there were therefore hardly any drug representatives. Pharmaceutical preparations were made by individual retail druggists on their own premises, according to the in-

structions and formulas given in the early forerunners of the British Pharmacopœia.

From 1797 onwards, Luke Howard, founder of the famous firm that bears his name, travelled extensively round the country, largely on his philanthropic and religious work in connection with the Society of Friends. In the course of his travels he called on many business friends in the neighbourhood, and no doubt booked orders. But for the first quarter of the nineteenth century, at least, business in the drug trade was mainly by correspondence.

In other spheres, the era of the stage-coach was the heyday of the commercial traveller of the old school—the bagman whose racy contribution to the *Pickwick Papers* is known to all lovers of Dickens. Dickens, in fact, was a good friend of commercial travellers. In the words of a contemporary, "He found them to be full of anecdote, wit, and good fellowship, and possessing many of the qualities with which he was most in sympathy." When staying away from home, Dickens always preferred to use the "Commercial Room," and much of the atmosphere of commercial travelling in those days is preserved in *Pickwick Papers* and other works.

"Commercials" and their Traditions

During those years, immediately prior to the coming of the railways, the "commercial gentlemen" made for themselves their own particular niche in business life. They saw the origins of many customs still in use amongst travellers today. No "commercial," for example, even today will leave his coat in the hotel cloakroom. He takes it with him when he goes to bed, probably not realising that his action is a direct link with the old coaching days: when the "outside passengers," on arriving at an inn during a night journey, would

wander through the rooms on the pretext of stretching their legs, taking the opportunity of removing any clothing or property left about by the sleeping guests.

Those were the days of the "commercial dinner," complete with wine, the reaction against which was to have such far-reaching effects a few years later. But in the meantime the old description of commercial life—"a very jolly sort of life"—was true enough, with few of the dangers of the road remaining. Life was indeed leisurely by present-day standards. Most travellers still made their journeys on horseback, with their samples in the saddle-bags, leaving their headquarters for six months at a time, and sending their orders home but once a week, to avoid the expensive postage.

Half-Yearly Calls

Shopkeepers away from the metropolis were accustomed to order only twice yearly, when the traveller called, and the "commercial" in those days enjoyed a prestige that has never been surpassed. Approaching a town on a fine summer's evening, he would most probably be met by one of his clients, who had ridden out several miles to welcome him, and to have at first hand the latest news from the city, the latest jokes, and, most important of all, to hear before his competitors what lines were being offered and at what prices. In the days before fixed prices, the commercial traveller usually made his own terms, and tried to get as good a price as he could for his house. Small wonder that the retailer was anxious to keep in with him, and the visit was far more a social occasion than it is today. A "drummer," to use the description then in fashion, might stay with a customer two days, being entertained by him on the first evening, and returning the compliment on the second.

It is about that time—at the end of the first quarter of the nineteenth century—that commercial travellers are first heard of in the drug trade. Perhaps one of the most famous of the early travellers was "Walking Pegg," the first representative to be sent on the road by the House of Maw in 1840. "Walking Pegg" earned his title owing to the fact that he was an inveterate walker, and would send his luggage and samples on ahead by stage-coach, preferring to cover the distance between towns on foot. He was one of the real old "characters" and forged a bond

between himself and his customers that no doubt played a great part in building up the early fortunes of this famous house. Pegg travelled for Messrs. Maw for nearly twenty-five years until his death in 1863. and for most of that time was the company's sole representative, covering the whole of the country.

The same company, incidentally, was one of the first to send travellers abroad, and a sad little tale relates how an early Maw representative, doing some real "pioneering" work up the Amazon in 1865, completely vanished without trace! Those foreign commercials certainly led exciting lives. An American drug traveller making calls in Sacramento, California, about the same time, found himself held up by the sheriff at pistol-point one morning, and clapped into jail for the remainder of the week as he had carelessly forgotten to obtain a licence, of a kind the town council issued to all newly-arrived "commercials."

At home, though travellers were hardly likely to disappear overnight, life was not too smooth for some, particularly those calling on the larger druggists. It was customary, for instance, to take the dispenser (or whoever was responsible for drug-buying) to the nearest inn and fill him up with his favourite brew, before getting down to business. That form of bribery increased to such an extent that in the 1850's there was a famous law-suit brought against a firm of retail chemists, whose drug buyer had stated publicly that the drugs supplied were of very poor quality, giving that as his reason for not ordering. In fact, as was shown in court, the real reason was that the traveller refused repeatedly to "grease the palm" of the buyer.

Financial Difficulties

More than one representative found himself forced to go to the money-lender, or, worse still, to help himself to his firm's money, because of the large amounts he was forced to pay to buyers, and the unwillingness of many manufacturers to admit that the practice existed.

Then came the railways. Commercial travellers, it was said, were doomed. Buyers from almost anywhere in the Kingdom would be able to travel quickly and easily to the Manchester or London warehouses, doing away with the necessity for travellers to journey round visiting them. The prophets proved to be false.

The tempo of business and commercial life quickened as transport became easier and cheaper, and a newer, keener type of representative began to make his appearance. The old "bagman" of the early eighteen-hundreds began slowly to disappear in the face of more intense competition. Far from dispensing with travellers, manufacturers found it necessary to take on more and more. A writer on the subject in 1860 remarks that "there are not more than one or two houses of any repute that can command any large amount of business without the aid of the commercial traveller."

A New Type of Traveller

The death-knell to the old type of hard-drinking commercial came in 1872. Prior to that year, the young traveller setting out on the road was forced to join in a type of existence that was not only strange to him, but in many cases downright repugnant. The "commercial dinner," previously mentioned, was a nightmare to many a "greenhorn" on his first journey. The system was for the various representatives making their headquarters at the inn to gather for dinner once the bulk of the day's business was concluded. That could be quite early—perhaps at about three in the afternoon. The first arrival at the table was automatically "president," the last-comer automatically "vice-president." There was no arguing about that. An old story tells about a young traveller, coming in as the last arrival to his first commercial dinner, being mystified at the continued reference to him as "Mr. Vice." At length he took a business card from his pocket and handed it to his neighbour, with the whispered instruction to "pass it to the old gentleman at the top of the table and tell him I am Mr. Bloggs from Sheffield!"

The main drawback of the "commercial dinner," at least to the younger traveller, was the enormous amount of wine that had to be consumed with the meal. The innkeeper normally put on a special cut-rate "commercial" tariff, calculating that he would make up for it by the sale of wines (and if the president was a "commercial" of the old school, he most certainly did). Each diner was asked what he would take, and a bottle of that particular drink was placed before him. If he were an abstainer, or did not want anything, his neighbour would see to it that an extra bottle was called for all the same,

and divided among the other, less abstemious, members. As the total cost of the dinner, including wines, was divided exactly between the number present, many a young traveller, not wishing to get muzzy-headed so early in the day, was forced to pay for the drink of his more experienced companions, without having touched a drop himself. That was the procedure every day, and if the journey meant a week-end away at the inn, the Sunday evening supper was an infinitely more bibulous affair, in which all were expected to join. As an example of the cost incurred, there may be cited a bill for a Sunday evening supper in 1861 which worked out at 17s. 6d. per head (a lot of money in those days), and as a result of which "Mr. president" was obliged to have the doctor to assist him to resume his duties by Wednesday morning! A jolly life indeed!

Raising the Moral Tone

As business became more competitive, a growing number of travellers felt that the system had outlived its welcome, and that for better or worse, a complete break should be made with some of the old traditions. Accordingly in 1872 a handful of travellers met in a room in Aldersgate Street in the City of London, and drafted a circular to be addressed to the president of the day at each hotel inviting all commercial travellers to attend a meeting in London to discuss the formation of a "Christian Commercial Travellers' Association." The appeal met with an encouraging response, and before many weeks had passed the Christian Commercial Travellers' Association had been officially formed, taking for its object the "raising of moral tone" amongst commercials. The movement was not unopposed. Far from it! A large number of travellers, consisting in the main of "old boys," asserted that the Association "had no right to bring Christianity into the commercial room," and early members of the Association had a difficult time with the diehards. Gradually the movement spread, until by 1883 it was possible to commence publication of the first commercial travellers' magazine: "On The Road," whose registered office was at the same address in Aldersgate Street, at which the first meeting had been held eleven years before.

The appearance of "On The Road" created a fresh outburst of indignation, in which the national Press joined. The

"Evening News" of May 2, 1883, remarked: "It may be news to many excellent 'bagmen' that there exists a Commercial Travellers' Christian Association. Far be it from us to say it is not needed. But we incline to think its newly-started organ, 'On The Road,' is a little too goody-goody for the literary appetites of the bagmen that we have met."

On the whole, however, there were more bouquets than brickbats for the new publication, and it was felt to be doing a useful work.

Organisational Progress

The Association itself had not been idle prior to the start of the new journal. Members had been most active in the distribution of books in hotels, in collecting for deserving cases, and in particular in supporting the Commercial Travellers' Schools, which were established at Pinner in 1858. The amount of work done by members of the Association, without any publicity and without the advantages of close contact with headquarters, may be illustrated by the facts that, by 1883, some 140 hotels in England, Wales and Scotland had been supplied with complete libraries by the C.T.C.A., and that in 1876 a certain Mr. James Hughes collected the astonishing sum of £17,000 for the Schools.

The early issues of "On The Road" show what strides had been made during the eleven previous years, and the magazine soon began to publish facts and information to travellers in a form that had not, till then, been easily available. Lists of half-days, market-days and local holidays were given, together with particulars of new hotels or changes of management. Manufacturers soon began to realise the potentialities of the publication, and many an advertisement is directed to the hard-working "commercial." A certain Mr. Salter, for example, in 1884 announced that all travellers should use his Perfect Pattern Tooth Brush. Just what the brush had to make it so peculiarly suitable is not clear, though the advertiser makes the claim that "The least movement of the hand causes the Brush to clean several teeth at the same time." Evidently travellers in those days were, like those of today, anxious to get away promptly in the morning.

Advertisements for "patent" boots abound, guaranteed to "prevent the weary aching sensation often experienced after

lengthy exercise." A branded chlorodyne is "recommended for travellers in foggy weather, and for coughs, colds, consumption, diarrhoea and spasms." But not all manufacturers were on the side of the chemist. An advertisement for a truss warns, very scathingly, "Do not buy of Chemists, who often sell an imitation of our product!" How the trade would react today if an advertisement carried such a statement.

Those were the days of the great temperance movement in this country, and the C.T.C.A., by recommending temperance hotels in its columns, made its own contribution to the cause. Many a traveller, retiring after a full life "on the road" found it profitable to start a hotel of that type, though, to judge by the correspondence columns, the standard of comfort and cleanliness was occasionally placed second to "moral improvement."

Conditions progressed a long way from the good old days of the commercial dinner with its rounds of wine but—like many new movements—"temperance" probably went too far, and ran the danger of defeating its own object. At all events, the Commercial Travellers' Christian Association, with its accent on the moral and spiritual welfare of its members, tended to neglect the more mundane and practical issues. Some attempts were admittedly made to obtain special rates on the railways, and the first indication of a desire for a Travellers' Benefit Society was seen in the pages of "On The Road," but that was rather a responsibility of the editor of the magazine than of the Association itself. In 1885 a new association was formed, the United Kingdom Commercial Travellers' Association, which took over the official magazine, and which is today the connecting link between "commercial" everywhere. The new Association concerned itself solely with the conditions under which travellers worked and with safeguarding their status.

Pharmacists Enter the Field

As medical research went forward, and more and more specialised products came on to the market, many drug firms found it useful to employ representatives who were qualified chemists. A good many of these medical representatives were not engaged in actual selling, but concentrated mainly on propaganda to doctors and hospitals, leaving the retail pharmacist to order his own supplies when the prescrip-

tions started coming in. As the problems of the medical travellers were rather different from those of their brothers, it was not surprising that an association was formed catering particularly for their needs. This was the St. Vincent Association, founded in 1906 by a group of qualified representatives who included Mr. R. Mumford, Hove, and the late Frank A. Rogers. Though for some years the association has ceased to exist, an organisation to cater for medical propagandists still appears to be needed, and attempts are being made to form a new society.

Today's Standards

Today the life of the traveller, particularly if his calls are within the drug trade, is far removed from the spacious customs of a hundred or even fifty years ago. The standard of the true commercial traveller is high, despite the rebuffs and difficulties he is forced to experience during the course of a journey. Immediately after the 1939-45 war the profession was in some danger of deteriorating. In fact, during 1946, and for a year or two afterwards, the standard of commercial travelling in Great Britain probably reached an all-time low. In those years a great number of young men were thrown on to the market. Many of them, unwilling to return to the close confines of an office job, decided that the representative's life was the life for them, and took situations with firms that were quickly "cashing in" on shortages of various kinds. Chemists in particular were quick to notice any lapse from the unwritten rules of the profession, and a few of them, mainly from their experiences with the "greenhorns," developed a dislike for all representatives.

Those keen young types, with their pseudo-Oxford accents and handle-bar moustaches, had to learn that to be "on the road" involved more than booking orders and having a high old time at the local Trust House in the evening. Sadder and wiser, they gradually returned to their office desks, as old-established firms came back into production and the experienced representative returned to his territory.

Today, the commercial traveller is a man who must know his job, and must know the products he is selling. In the field of ethical pharmaceuticals in particular, that knowledge is extensive, but freely at the disposal of the man in the shop. He may be the tenth representative to call on a given day. If he is, let it be

borne in mind that the chemist is possibly the twentieth the traveller has had to see. Never, by the slightest sign, does he hint that he may have found the going rather hard. When he does finally reach his hotel and sits down to his evening meal, there is still the question of orders to write out, and the report to send to his sales manager.

Yet, though it may not be the "jolly life" as described by the old writers, commercial travelling remains one of the most pleasant of existences. Those of its number who call on retail chemists are fortunate, in that they are dealing with a straightforward body of men, whose loyalty and friendliness is one of the brightest features of commercial life. The old days are gone, it is to be hoped, for good. There is now little need for an association to "raise the moral tone" of travellers, and though a good story is still appreciated and passed on, the conversation in the bar of a commercial hotel today is more likely to be centred around "shop," or where to get the best lunch in the next town. Probably through being away from home so much the average representative is perhaps more conscious of family ties than the next man. He rarely goes out at weekends, probably belongs to the local church or chapel, and is a member of the cricket club or horticultural society. His living depends on getting on with people—a great asset in private life as well as in business.

Place in Society

And his usefulness? Professor Trevelyan, the eminent social historian, has stated that the commercial traveller has played an important part in the commercial development of this country. Let the retail pharmacist, who has served the public loyally and well for many generations, and is a highly respected citizen, respect in turn a body of men who have served the trade loyally and well for almost as long a period, and whose ancestors first made possible retail business as it is known today.

Owing to the special character
of this issue, the
C. & D. REFRESHER COURSE
is held over

The next instalment will appear
in the July 5 issue

PEPPERMINT and MENTHOL INDUSTRIES of BRAZIL

PEPPERMINT was first grown in the Sao Paulo district of Brazil by Japanese colonists in 1928 from imported seeds of *Mentha arvensis*, the variety containing the highest percentage of menthol. Seedlings were later conveyed to Rio de Janeiro, but S. Paulo has maintained its early lead and the experienced Japanese farmers produce twice as much per acre as their competitors. The chief producing centres are Presidente Prudente and Sertao Rio Preto.

Dr. Caetano Bersaghi, of the S. Paulo Agricultural Department, in a treatise on the cultivation of mint (1945), points out that when conditions are favourable the same plants may be economically exploited during three successive years, three crops being gathered annually. The yield of dried herbs ranges from 2.5 to 3.3 tons per acre, while the oil content varies from 1 per cent. to 3 per cent. Considered in relation to acreage, Dr. Bersaghi estimates that the oil yield averages 91.6 lb. per acre, rising to 128 lb. under ideal conditions of soil, harvesting and distillation. This is slightly higher than the average yield in Japan.

The mint is gathered when the first flowers appear, conveyed immediately to special sheds to avoid exposure to the sun and stored on racks in bundles for three to four days until sufficiently dry to facilitate distillation without detracting from the quality of the oil. When properly dried the water content is reduced from about 70 per cent. to 18 per cent.

Modest Beginnings

S. Paulo planters started producing *arvensis* oil on a modest scale in 1936, using rudimentary stills, some of which continue in service on small plantations. The apparatus consisted of a brick oven and an iron or copper boiler, with a perforated wooden cover on which the still rested. The latter was made of hardwood staves, such as are used for barrels, the cover being held, tightly clamped, by adjustable tie-wires. A copper tube led from the centre of the cover to a serpentine, consisting of about 40 ft. of copper tubing in a recipient in which water was made to circulate freely. The liquid condensed in the serpentine and passed into a separating chamber, where the oil was separated from

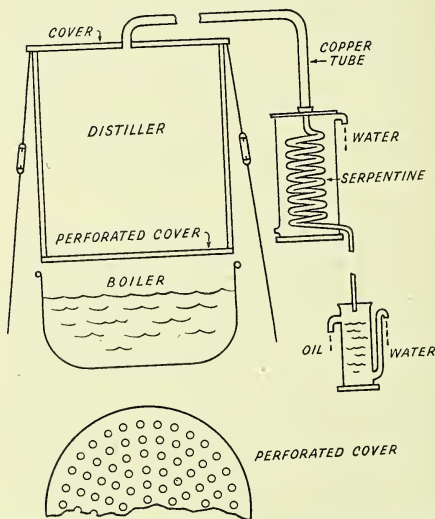


Fig. 1. Early form of distillery (from a sketch by Dr. Caetano Bersaghi).

the water by gravity and drawn off at the top, the water flowing out at the bottom (Fig. 1). The new industry remained in this incipient stage until the outbreak of war in 1939, when Great Britain and other European countries turned to Brazil for supplies of peppermint oil.

Exports are not quoted separately in the foreign trade returns, nor are there any production statistics prior to 1944 when, according to the Geographical and Statistical Institute, Brazil produced 360 tons. As the demand increased, agricultural and industrial processes were perfected and local engineering firms designed improved apparatus. Modern boilers facilitate the introduction of steam into appropriately constructed herb tuns, ensuring efficient and economic distillation (Fig. 2). The experimental work of the State Agricultural Department aided manufacturers to build complete modern installations and distillers to obtain the best possible results from their apparatus.

The Technological Institute quotes the following analysis of S. Paulo *arvensis* oil: Specific gravity at 25° C., 0.897; refrac-

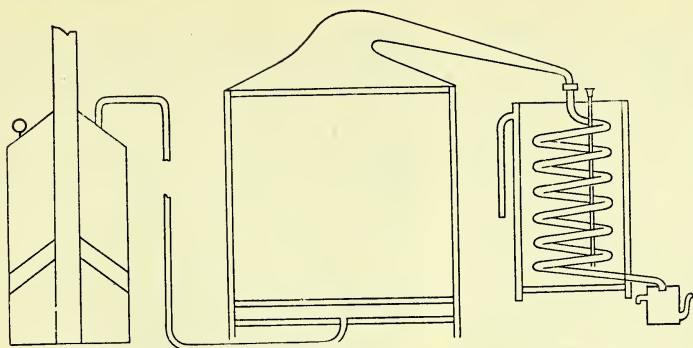


Fig. 2. Sketch of modern distillation plant (by Dr. C. Bersaghi).

tion at 20° C., 1.4595; esters, 6.8 per cent.; menthol, free and combined, 82.1 per cent. These results differ slightly between producing zones, and the colour varies from pale yellow to deep yellow-gold according to the condition of the herbs when gathered.

S. Paulo began extracting menthol in 1943, after the United States had entered the war and supplies from Japan and China had ceased. Production was started in a few well-organised factories in which modern processes were adopted at the outset. The crude oil as it arrives from the plantation is purified and clarified by centrifuge or filtration.

The purified oil is cooled slowly down to about 14° C. for some days in appropriate tanks. The menthol crystals are then separated from the mother-liquor by centrifuge. The mother-liquor, which contains 40-45 per cent. free menthol and 6-10 per cent. esterified menthol, is saponified with sodium or potassium hydroxide, then crystallised at low temperature (—10 to —12° C.). The crystals are separated and this menthol is submitted to recrystallisation. The mother-liquor, which still contains some 40 per cent. menthol of the original oil, is next submitted to fractional distillation. The middle fraction resulting is enriched in menthol and menthone. From this fraction more menthol is obtained by crystallisation at low temperature and purified by recrystallisation. The other fractions contain the residual components of the original oil. The finished product possesses the following physical characteristics: Fusion point, 43-45.5° C.; boiling point, 215-216° C.; specific gravity, 0.881; rotation, 49-50°. All menthol exported from S. Paulo is examined by the Technical Research Department and must

conform to the requirements of the U.S. Pharmacopœia.

At the beginning of the 1943-44 season, owing to the American demand and the small output of S. Paulo factories, the price of oil and crystals soared to unprecedented heights. "Facts about the State of S. Paulo," published by the British

Chamber of Commerce for S. Paulo and Southern Brazil, gives the 1943-44 quotations for crude arvensis oil and menthol as 16s. and 14s. 2d., respectively, per lb. Prices continued to rise throughout 1944, however, bringing the average for 296 tons of crystals shipped to 20s. 7d. per lb.

Scramble to Produce

These spectacular prices stimulated interest in the new industry. The number of planters and distillers in S. Paulo jumped to several hundreds and that of menthol factories increased from seven to thirty. The 1944-45 crop yielded 1,300 tons of crude oil, sufficient for 780 tons of crystals and 390 tons of rectified oil. Production exceeded market requirements and prices slumped. The cost of crude oil fell to 9s. per lb. and the f.o.b. price of 475 tons of menthol, shipped overseas in 1945, dropped to 53s. per lb.

Thereupon the government, in response to an appeal by the trade, fixed the price of menthol sold to the U.S., Brazil's biggest customer, at U.S. \$19.50 per kilo or U.S. \$8.86 per lb. The measure proved disastrous, as it coincided with the end of hostilities in Europe. Sales to the U.S. dropped by 120 tons in 1946 but the trade was temporarily relieved by increased export to Britain and other European countries. These brought the total shipments for the year up to 350 tons, at an average price of 41s. 3d. but were quite insufficient to absorb excess production. Stocks accumulated, the floor price was abolished and speculators, anticipating a rise, bought up all available supplies. The market is highly speculative, menthol prices varying by over 10s. per lb. during a season.

The demand from abroad is also erratic, owing to changing conditions in other producing centres. The U.S. resumed buying in China after 1945, continuing to do so until the Nationalist Government there fell, and began purchasing in Japan again as soon as peacetime production was restored. Brazil's exports dropped from 475 tons in 1945 to 352 in 1946, 310 in 1947, 135 in 1948, 226 in 1949 and 79 in 1950. In 1951 the demand revived and by the end of September Brazil had shipped 252 tons overseas, the bulk to the U.S. During the year of the Anglo-Brazilian Trade Agreement, which expired on June 30, 1951, Britain bought Brazilian menthol valued at £327,044 (about 40 metric tons).

Constantly rising prices prevent expansion of foreign markets. Menthol manufacturers, and others, complain that production costs are inflated by the growing onus of social legislation, repeated wage increases and rising taxes. The export price of menthol increased from 41s. 3d. per lb. in 1946 to 52s. 4d. in 1947, 55s. 7d. in 1948, 56s. 4d. in 1949, 72s. 10d. in 1950 and 74s. 5d. in 1951. Towards the end of the year S. Paulo quotations jumped to 91s. (For comparison the present official exchange rate is used throughout.)

As this price precluded foreign sales the Bank of Brazil, towards the end of 1951, authorised exports of menthol under compensation deals, or barter operations.

Under that system high-priced Brazilian products, which cannot compete normally in world markets, were sold abroad at international prices (or thereabouts); the difference between those and local prices, amounting sometimes to 70 per cent., was added to the cost of the imported articles, usually non-essential goods, received in exchange. The first licences to export menthol under combined operations were issued in October 1951, when small sales were negotiated at U.S. \$10.13 per lb., f.o.b. Santos. By January, however, menthol was being shipped to New York at U.S. \$7.61, and to Germany at U.S. \$7.35. As a result, Brazilian menthol was sold in New York at U.S. \$8.40 and was later offered at U.S. \$7.50. In January, also, permits were issued to export 19,830 kilos of arvensis oil to Britain under combined operations at 21s. per lb.

Price Fall Problems

The number of factories in S. Paulo has now dwindled to six, but hundreds of firms continue distilling; the 1952 oil crop exceeds the estimates and the price had dropped to 20s. c.i.f. by May. Distillers complain that the collapse is due to market manipulations, not to over-production. They ask the government to finance the crop on the basis of the present quotation, so that they may be able to withstand unremunerative offers. S. Paulo had 18,444 acres under peppermint in 1951.

A few plots are sown with *M. piperita* (the variety usually cultivated in Europe and the U.S.).

Piperita is less rich in menthol, but yields about 160 lb. of oil per acre. The most notable difference between the two varieties is in the location of the flowers. In the *arvensis* variety the flowers are arranged in rosettes around the stem, exactly at the axilla of the last ten to twenty pairs of opposing leaves on the terminal branches. In the *piperita* variety the flowers are carried in panicles at the tips of the branches.



Fig. 3. The two peppermints, *piperita* (left) and *arvensis*, in full flower.

TRADE REPORT

Spot quotations for pharmaceutical chemicals represent the prices for wholesale quantities of standard quality. Prices of crude drugs and essential oils vary as to brand or grade.

LONDON, JUNE 24
A SURVEY of the markets during the first half of 1952 shows that all commodities are now more readily available and many are easier in price than in January. Though it is usual for the volume of inquiry to fall as the summer approaches it is certain that the quietness displayed this year is largely due to the general tendency to buy on a hand-to-mouth basis for fear of future untoward developments.

Pharmaceutical Chemicals

A further reduction in the United Kingdom price of good ordinary brand zinc metal by £8 per ton on June 20 was followed immediately by a cut of £6 per ton in the price of all grades of ZINC OXIDE. Since May 22, when the oxide first declined, there have been four reductions aggregating £54 per ton. Now standing at £166 per ton, the B.P. grade is at the lowest level since December 15, 1950, when it rose by £31 15s. to £185 per ton. Lower rates were also recorded during the week for CALAMINE (one penny per lb. less). THYMOL is 3s. 6d. per lb. lower—the third reduction this year. STEARATES are also quoted cheaper; the prices of ZINC STEARATE range from 272s. 6d. to 331s. 6d. per cwt. as to grade, representing a cut of 10s. per cwt.

CALAMINE.—Lower. Rates per lb. are now as follows:—1-cwt. lots, 2s. 7d. per lb.; 28-lb., 2s. 11d.; 7-lb., 3s. 3d. Rates for ZINC CARBONATE are halfpenny per lb. less than for calamine.

THYMOL.—Lower. In 28-lb. lots the price is now 23s. per lb.

TRIETHANOLAMINE.—Commercial grade is 3s. per lb. for drum lots, ex warehouse.

ZINC OXIDE.—Lower. Minimum (2 tons) rates are as follows:—B.P., £166 per ton; white seal, £153 10s.; green seal, £152 10s.; red seal, £151.

Crude Drugs

The outstanding feature of the week in the CRUDE DRUGS market has been the price indicated for new-crop Portuguese ERGOT at 15s. per lb., c.i.f., with buyers still holding off. Not for three years has this level been touched, though buyers will recall that four years ago the price stood at 4s. per lb., c.i.f. PERU BALSAM, at 14s. 6d. per lb. for spot material and 12s. 9d., c.i.f., was easier by sixpence per lb. CLOVES were again firm, with supplies of Zanzibar difficult to locate on the spot at 8s. 6d. per lb. or forward at 9s. Chinese MENTHOL was firmer on the spot at 52s. 6d. per lb., duty paid, a rise attributed to Continental buying interest;

the Brazilian material, however, was unchanged. CASCARA SAGRADA, 1952 peel, was offered at 235s. per cwt., c.i.f.

ELEMI.—Spot offers are in the region of 245s. per cwt.

ERGOT.—Portuguese is 27s. 6d. per lb., spot, and new-crop for July-August shipment is 15s. per lb., c.i.f.

GAMBOGE.—Siam pipe is offered at £45 per cwt., duty paid.

MENTHOL.—Chinese is 52s. 6d. per lb., and Brazilian, 45s., both duty paid. Forward offers of Brazilian are about 40s. per lb., c.i.f., prompt shipment.

SEEDS.—ANISE.—Turkish, 132s. 6d. per cwt. in bond. CARAWAY.—Dutch is slightly firmer at 88s. 6d. per cwt., duty paid.

CELERY.—Indian, 1s. 9d. per lb. on spot. CORIANDER.—Quiet. Morocco sellers asking 60s. per cwt., duty paid. Argentine splits, 57s. 6d., duty paid. Shipment: Morocco, new-crop, price has slumped to 41s. per cwt., c.i.f., for June-July shipment.

CUMIN.—Market continues quiet. Spot: Malta, supplies cleared; Cyprus, 185s.; Indian, 182s. 6d.; and Morocco, 190s., duty paid.

DILL.—Indian offered at 80s. per cwt. with no business reported.

FENNEL.—Indian on the spot, 200s.; French, 185s., duty paid.

SENEGA.—Spot supplies are 14s. per lb., nominal. July-August shipment offers are 11s. per lb., c.i.f., for new-crop.

SENNA.—Prime No. 3 Tinnevely LEAVES are 8d. per lb., c.i.f., and f.a.q., 7d. per lb., c.i.f. Hand-picked PODS range from 1s. 5d. to 2s., and f.a.q., 9d. per lb., c.i.f.

Other quotations are unaltered from the previous week.

Essential Oils

The Continent was also interested in Chinese PEPPERMINT, and though no rise in price was recorded it held firm at the previous level. PETITGRAIN was sixpence lower at 24s. per lb. and PATCHOULI at 58s. was 4s. 6d. per lb. down.

OTTO OF ROSE.—Turkish is from 400s. per oz., spot.

PALMAROSA.—Spot quotations for Formosan are 37s. 6d. per lb. East Indian is 55s., c.i.f.

PATCHOULI.—Spot supplies of Penang are offered at 58s. per lb., and forward, 55s., c.i.f.

PEPPERMINT.—Chinese *arvensis* oil on the spot is from 34s. per lb. for 5-case lots; Brazilian, 20s. per lb., in drums; Italian "Mitcham" type, 60s.

PETITGRAIN.—Paraguay for prompt shipment is 21s. per lb., c.i.f. Spot supplies are about 24s. per lb.

TRADE MARKS

- From the "Trade Marks Journal," June 4
- For medicated confectionery* (5).
 TWENKS, 704,157, by Roland Fletcher Hall, Whitefield.
- For pharmaceutical preparations* (5).
 THROMBODYM, 697,933, by Auergesellschaft A.G., Berlin, Germany. PROSTABILLIN, STABILLIN, 705,341-42, by Boots Pure Drug Co., Ltd., Nottingham. RICHDRIN, 705,934, by John Richardson & Co., Leicester, Ltd., Leicester. CARBIOTIC, 705,973, by Sulfarsenol Laboratories, Ltd., Alperton. APERTASE, 706,161, by Farbwerke Hoechst vormals Meister Lucius & Bruning, Frankfurt-am-Main-Hoechst, Germany. DOSTOSAN, 706,486, by Frederick Jean Bengué, Alperton. GRANEODIN, 706,708, by E. R. Squibb & Sons, Ltd., 17 Old Bond Street, London, W.1.
- For medicated toilet creams* (5).
 GLACIER, 705,396, by Savory & Moore, Ltd., London, W.1.
- For medicinal preparations for the treatment of the blood and skin* (5).
 PIMGOL, 705,574, by Donald Henry Venning, Plymouth.
- For menstruation appliances, sanitary tampons and sanitary towels* (5).
 MOLLISOL, 706,000, by J. M. Mollison & Co., Ltd., Milnrow.
- For pharmaceutical preparations for the treatment of dandruff* (5).
 DANTREAT, 706,278, by Robert Andrew Harley, Chichester.
- For veterinary preparations* (5).
 FLOSOL, 706,371, by Boots Pure Drug Co., Ltd., Nottingham.
- For pharmaceutical preparations for human and veterinary use, sanitary substances and disinfectants* (5).
 MYLEPSIN, 706,499, by Imperial Chemical (Pharmaceuticals), Ltd., London, S.W.1.
- For disinfectants* (5).
 AIR CHARM, 706,647, by H. Thorpe & Co., Leicester.
- From the "Trade Marks Journal," June 11
- For soaps* (3).
 MAKBRITE, B705,735, by Macleans, Ltd., Brentford.
- For rust-removing preparations* (3).
 ROSTEX, 706,641, by Frederick Arnold Best, Westbrook-on-Sea.
- For pharmaceutical preparations* (5).
 VAGOPROL, 702,933, by Laboratoires Albert Rolland, Paris, France. NEBOVEX, 702,952, by C. F. Boehringer & Soehne, G.m.b.h., Mannheim-Waldhof, Germany. BIFACTON, 706,897, by Organon Laboratories, Ltd., London, W.C.2.
- For medicinal preparations* (5).
 LIVABEX 12, LIVABEX FORTE, 705,989-90, by Frank Macowal & Yanatas, Ltd., London, S.E.14. DISPAK, 706,373, by Thornton & Ross, Ltd., Huddersfield.

NEW BOOKS

Directory of the Brush and Allied Trades, 1951.—10 x 6 in. Pp. 434. 15s. Wheatland Journals, Ltd., 356 Kilburn High Road, London, N.W.6. This, the fifth edition of the directory, has been reset to take in the many changes and additions which have taken place since it was first published in 1948. In addition to the quick reference telephone-telegraph section (on tinted paper), the telephone numbers have been added to the addresses in the main body of the book.

Safety Rules for Use in Chemical Works (Part II).—9½ x 6 in. Pp. 282. 25s. Association of British Chemical Manufacturers, 166 Piccadilly, London, W.1. This book lives up to its subtitle, "Detailed Instructions." The first (58-p.) chapter is a guide to relevant legislation, including the Factories Acts and Chemical Works Regulations. Each safety requirement specified in the chapter carries a reference to the appropriate Regulation or clause. Other chapters deal with safety organisation, fire, explosion, gassing, etc.

American Pharmacy (third edition).—Edited by R. A. Lyman, M.D. 10 x 7 in. Pp. 505. 63s. J. B. Lippincott Co., Aldine House, Bedford Street, London, W.C.2. This new edition of an American standard work on pharmaceuticals brings it into line with the fourteenth revision of the United States Pharmacopœia. The book should be of value to British students who wish to widen their background knowledge. It is generous in information and explicit in instruction. Some twenty authors have contributed to make each section authoritative and there are 192 diagrams. The consulting editor is Professor George Urdang (an honorary member of the Pharmaceutical Society of Great Britain).

COMING EVENTS

Sunday, June 29

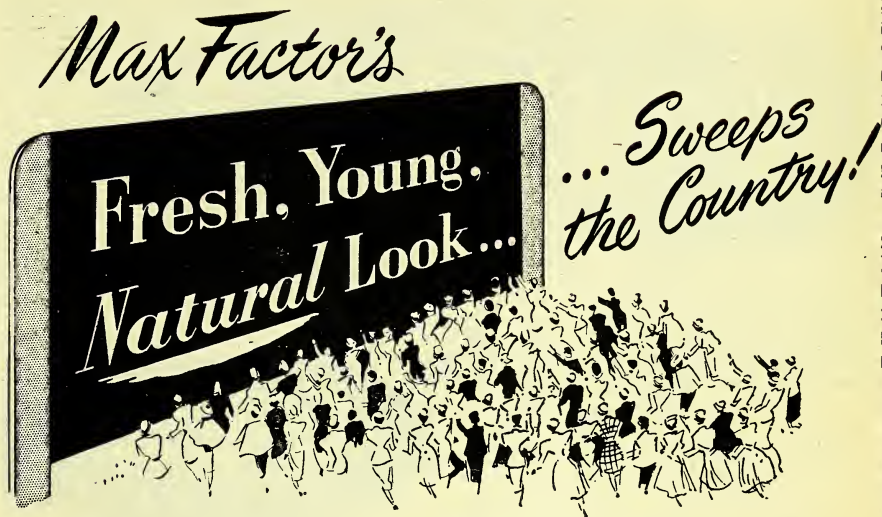
LONDON PHARMACY RAMBLERS, Ramble in Tilgate and Balcombe forests. Meet in reserved carriages on train (Victoria, 9.37 a.m.; Clapham Junction, 9.43 a.m., East Croydon, 9.57 a.m.).

Wednesday, July 2

LONDON CHEMISTS' GOLFING SOCIETY, Bush Hill Park Golf Club (telephone: Laburnum 5895). Fixture.

Thursday, July 3

BRITISH AND IRISH MEDICAL ASSOCIATIONS, Examination hall, University College, Dublin. Conference and exhibition (open until July 11).



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This Spring, Max Factor introduced to every woman and girl reader in the British Isles, a beauty promise . . . the secret of the "Fresh, Young, *Natural Look*" . . . introduced it with full colour and black and white large space insertions in the leading Women's Magazines and National Newspapers—a total of 160 million printed advertisements in 115 days. This promotion idea has proved to be the greatest in the Cosmetic Field in the post-war era. Beauty editresses have taken it up. The "Fresh, Young, *Natural Look*" is NEWS! This interest is being reflected in mounting sales.



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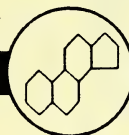
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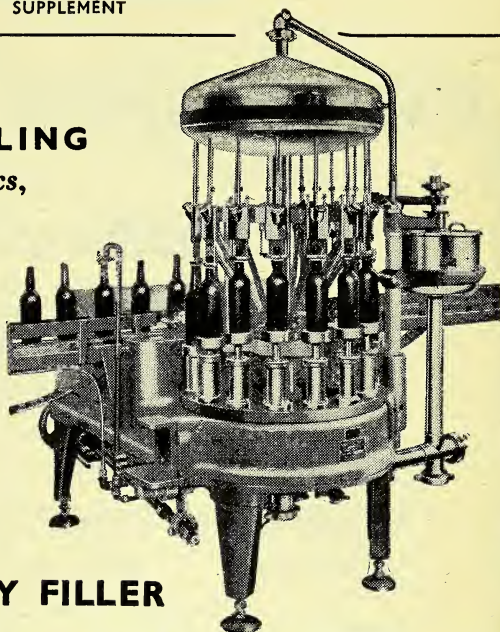
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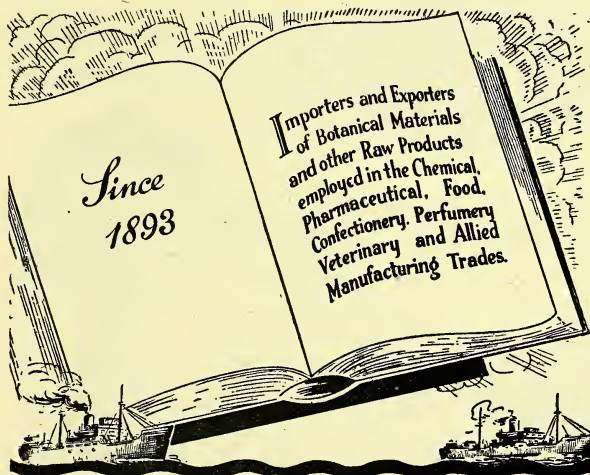
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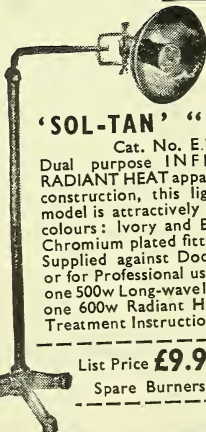
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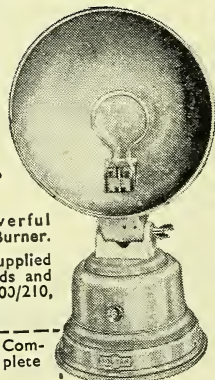
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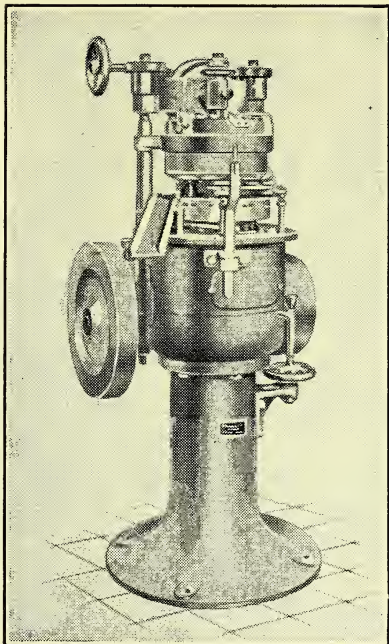
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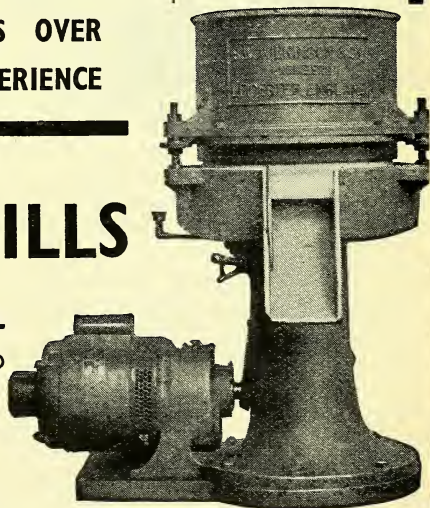
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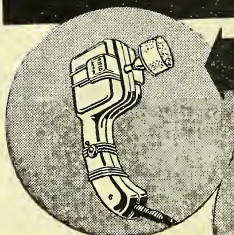
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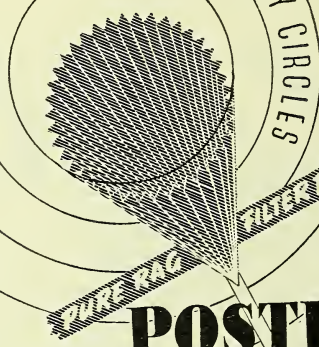


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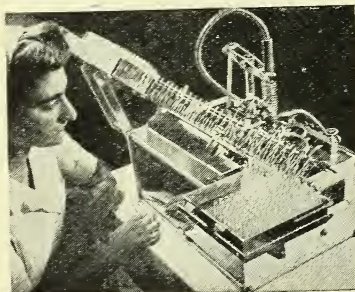
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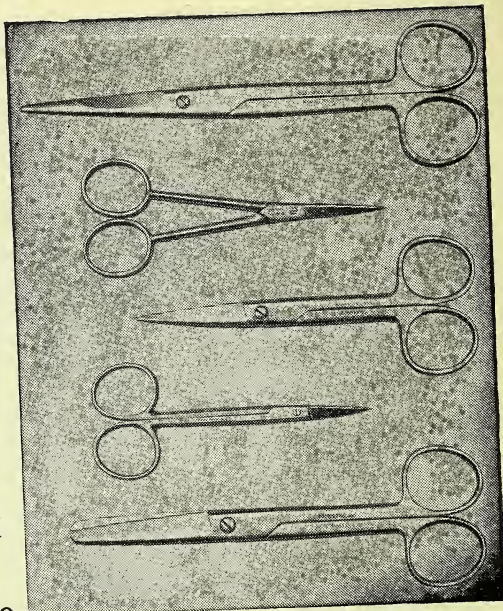
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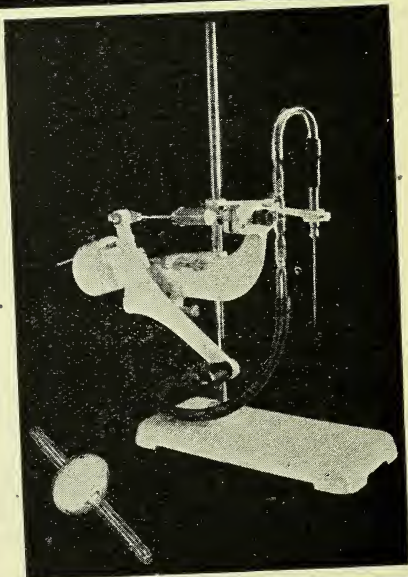
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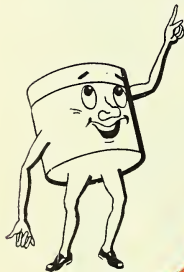
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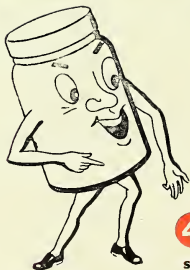
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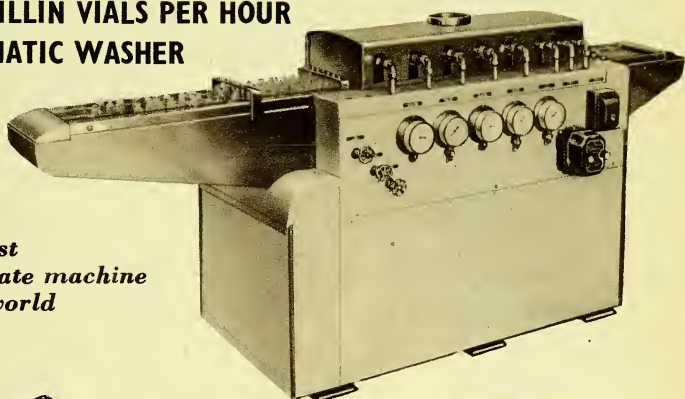
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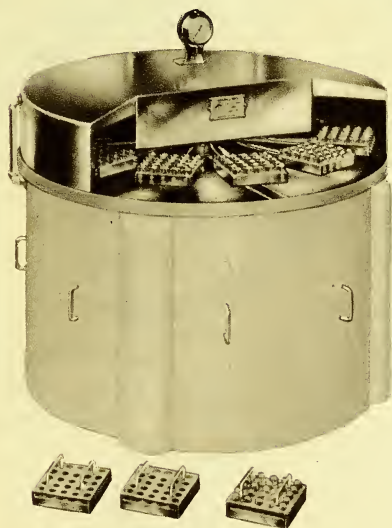
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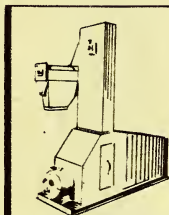
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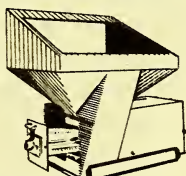
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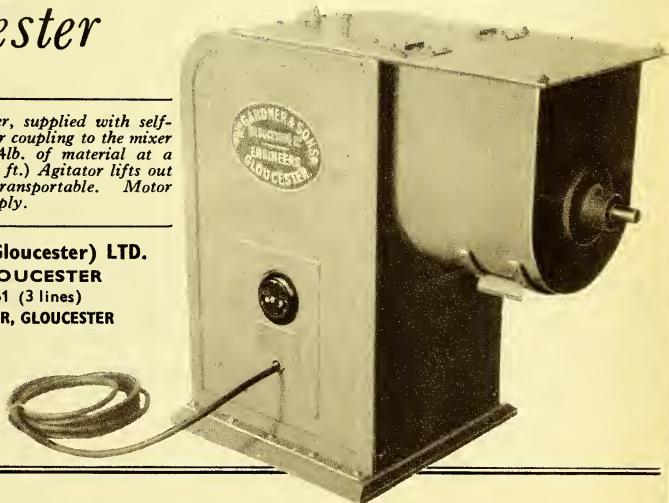
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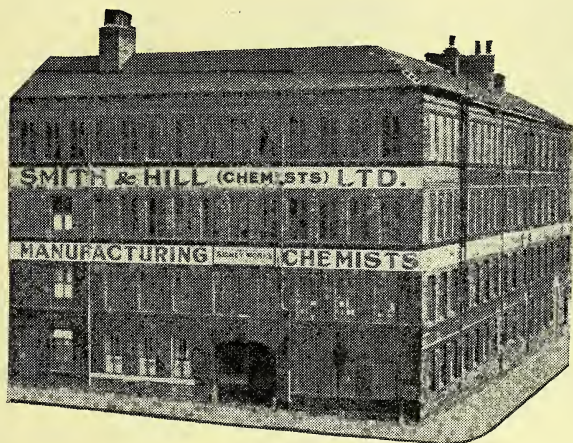
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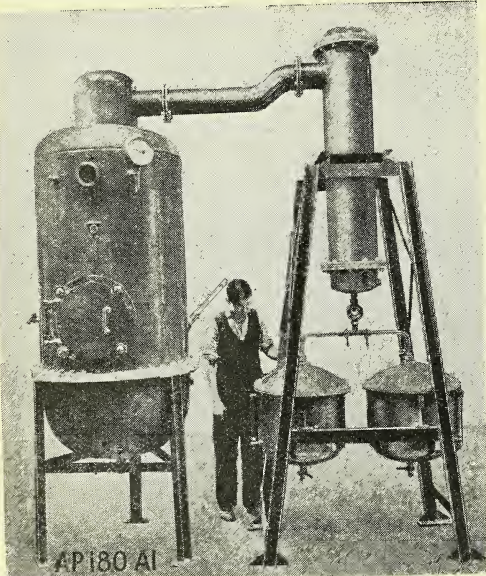
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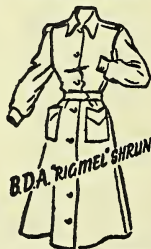
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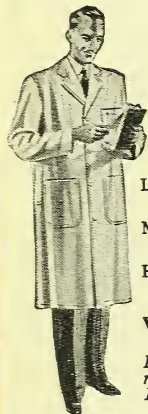
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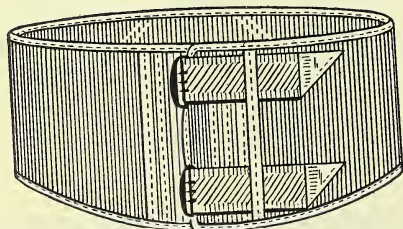
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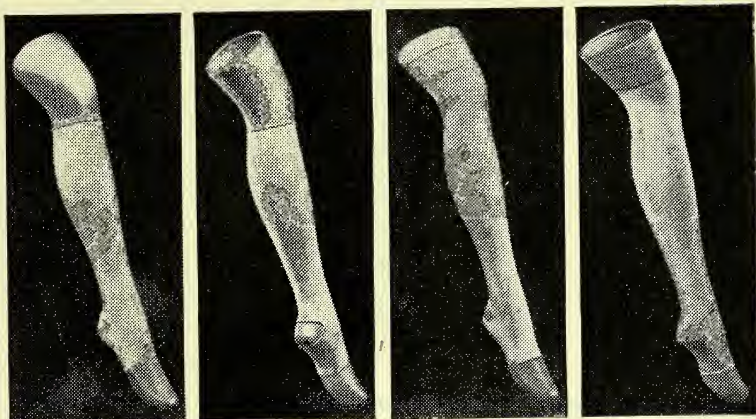
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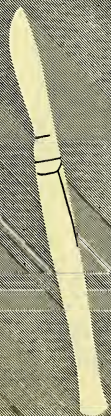
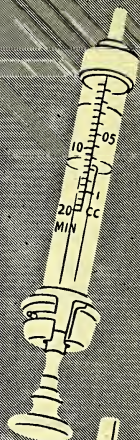
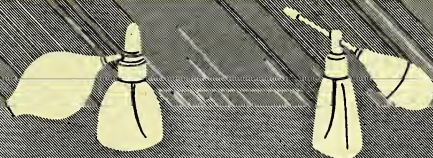
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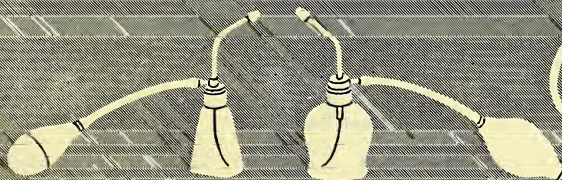
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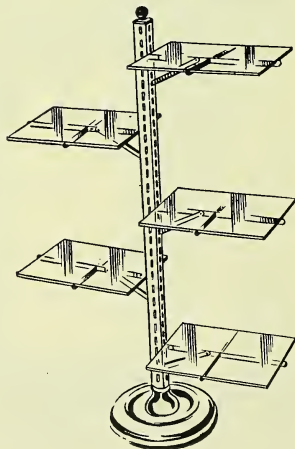
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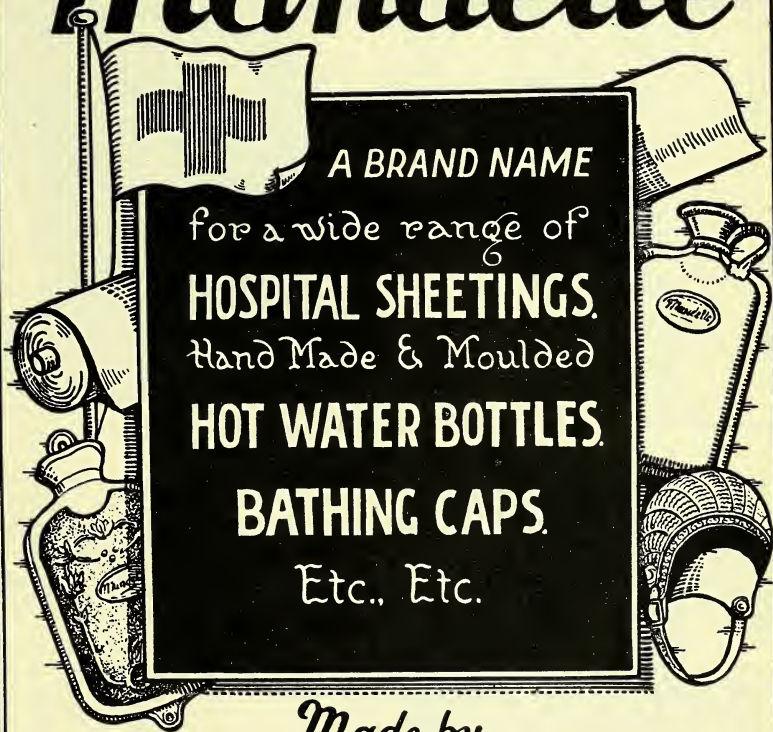
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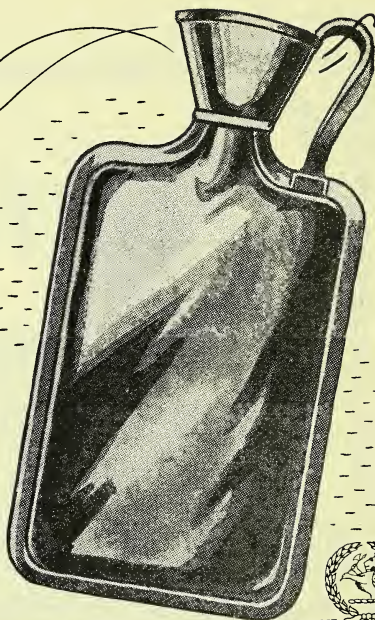


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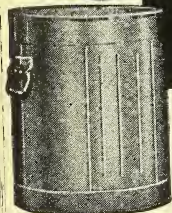
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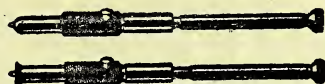
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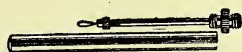
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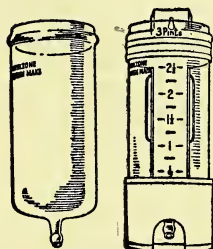
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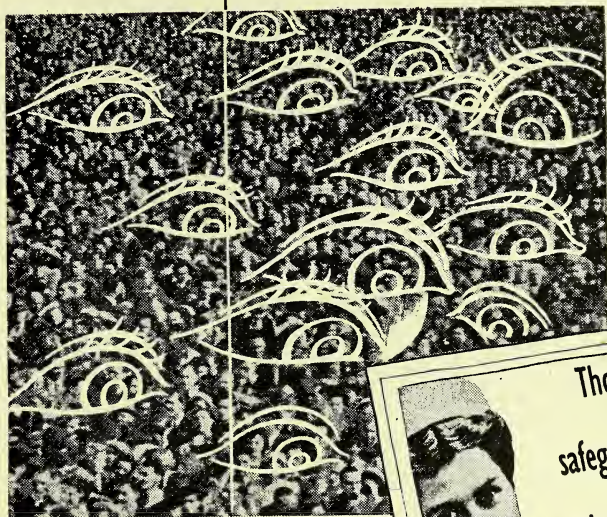
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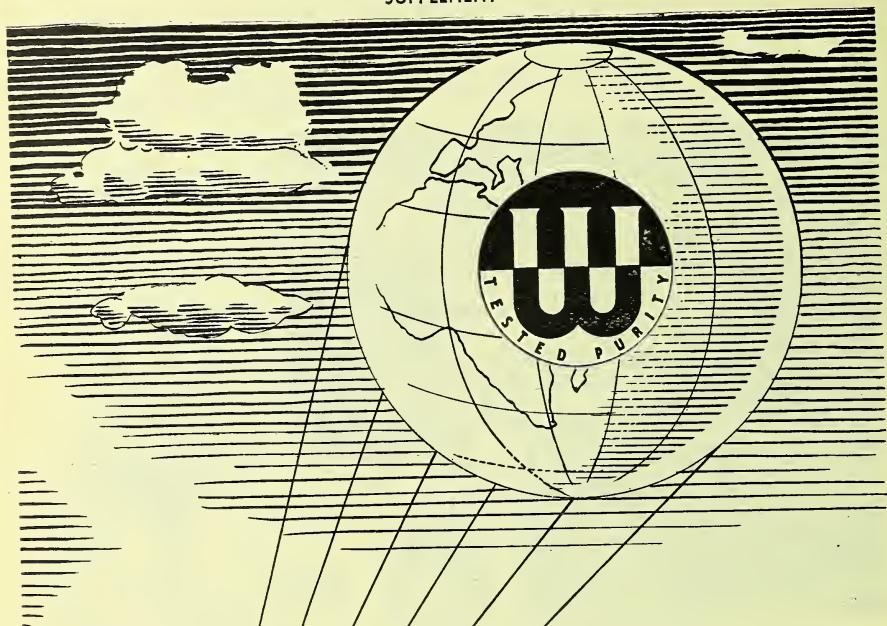
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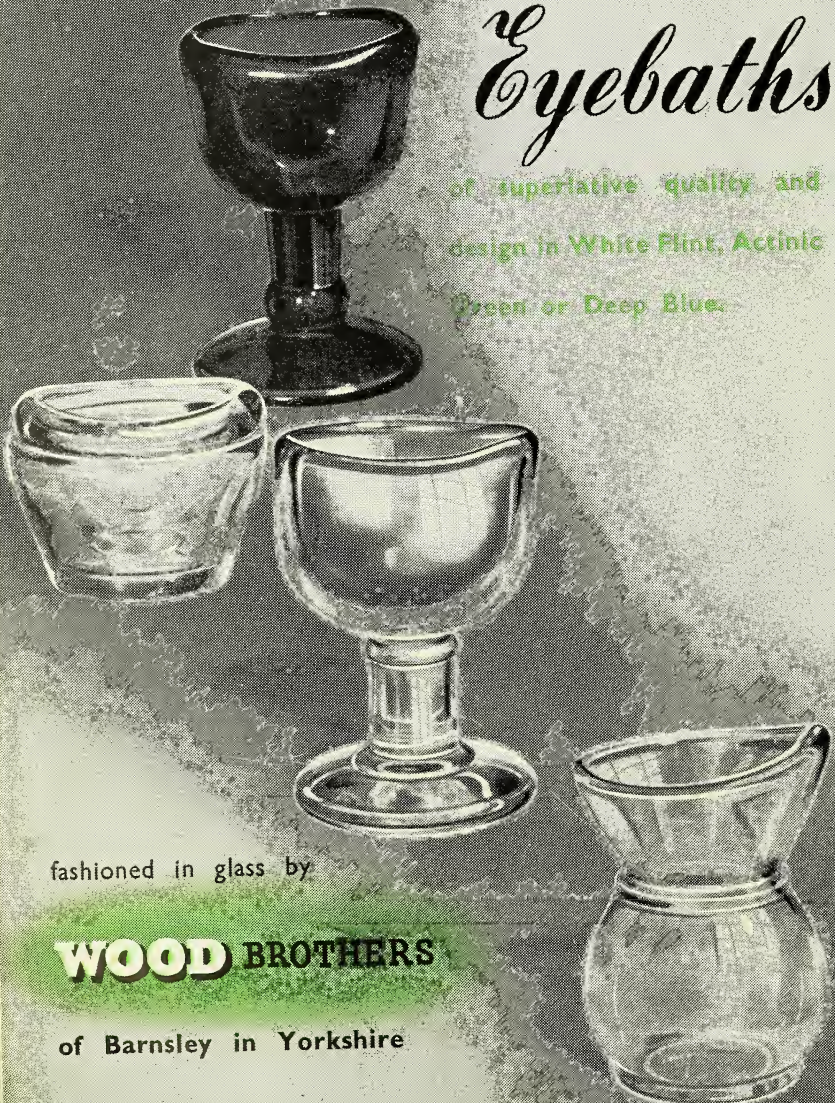
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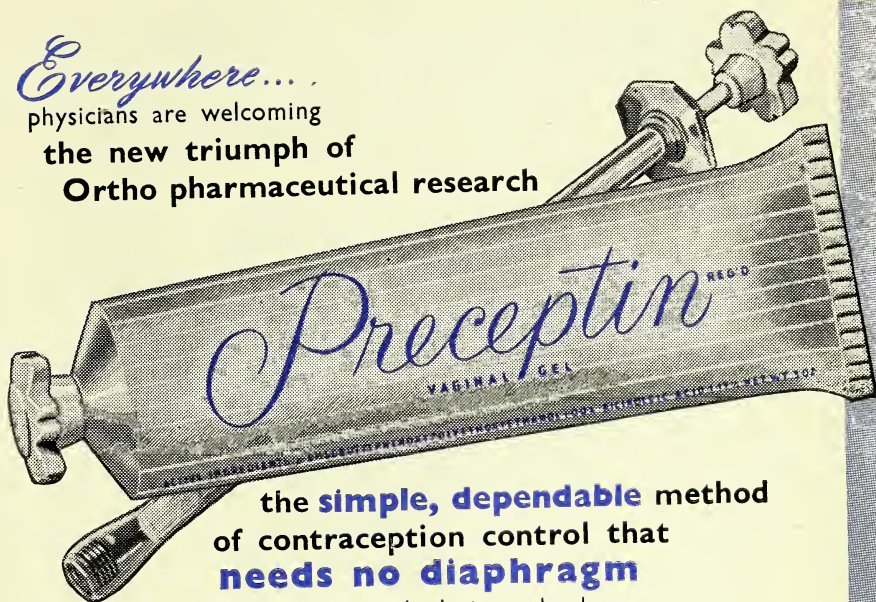
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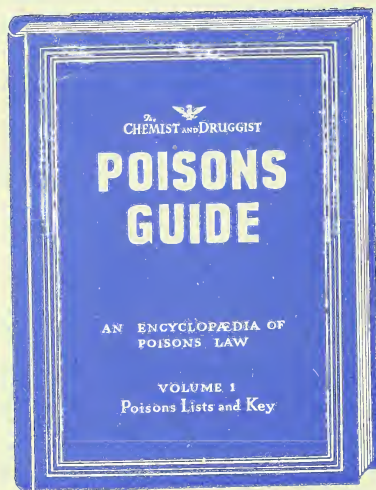
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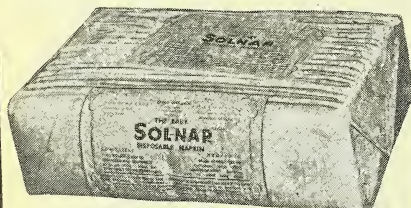
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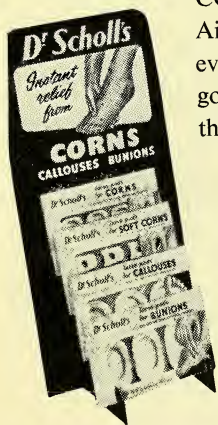
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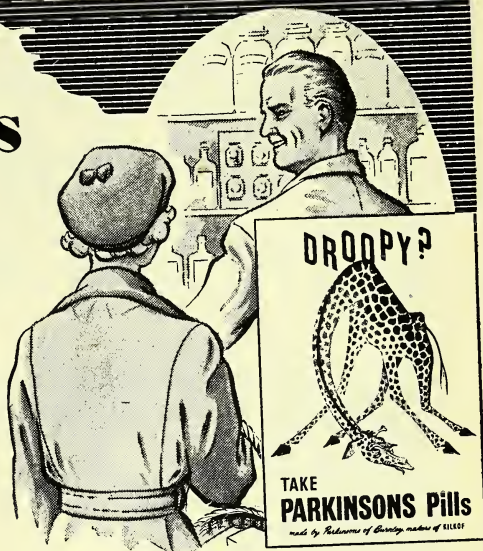
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“A bottle of **PARKINSONS PILLS** please”

Do make quite certain that you can supply what the customer asks for. And people are always asking for Parkinsons Pills—just as they ask for Kilkof during the cough season.

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Lemons
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*For acidosis ...
recommend*
Rayner's
Lembar
*all the year
hot or cold*



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EXPERT GUIDANCE IN TRUSS FITTING . . .

Under the National Health Service these appliances can be ordered on EC 10 forms.

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The informative series of articles on the subject recently published in *The CHEMIST AND DRUGGIST* have been reprinted in booklet form, "THE FITTING OF TRUSSES AND ELASTIC HOSIERY", which provides full information in concise detail. Copies should be handy for reference purposes in every pharmacy.

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**All types of Botanical and Crude Drugs for prompt
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*Supplies through your
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Other Knox
products
include
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KNOX LABORATORIES LTD., 29 DUKE STREET, ST. JAMES'S, LONDON, S.W.1

IMPERIAL CHEMICAL INDUSTRIES LIMITED**YEAR OF OUTSTANDING PROGRESS**

The 25th annual general meeting of Imperial Chemical Industries Ltd. was held on June 19 at Wigmore Hall, 36 Wigmore Street, London, W.1.

Mr. J. Rogers, O.B.E., LL.D., the chairman, presided and in the course of his speech said:—As the report shows, the company has again broken records, both in turnover and in profits. It is true that some part of the increase in turnover is due to rising prices, but the physical volume of turnover has also increased to record levels.

The total Ordinary dividend for 1951, 13 per cent., before taxation, is still smaller in purchasing power than the dividend of 8 per cent. paid for a number of years before and during the war.

The company's record for 1951 is one of outstanding progress. That progress continues, and the directors have before them no shortage of important and profitable schemes of expansion and development in which the company's resources can be employed.

Exports are as important, or almost as important, as rearmament. The company's direct exports are now running at well over a million pounds a week. In addition to the company's direct exports, it has to be remembered that a substantial proportion of our products goes to other industries which are producing for export. For this reason it is in the interests of the country, as well as of the company, that our capital programme should be pressed forward with no more delay than is absolutely necessary during the present crisis conditions.

So far as our future trading prospects are concerned, I should be unwise if I attempted any prophecy today. 1952 has brought new problems to some industries which a year or two ago were having difficulty in finding enough materials and labour to cope with an excessive demand, but which today are unable to find adequate markets either at home or overseas for their output. The setback in textile industries, for example, is not a problem peculiar to this country, but is world-wide, and this setback inevitably affects the demand for dyestuffs. For other industries there has been similar change from anxiety about raw materials to anxiety about markets. Nevertheless it is difficult to interpret these signs as foreshadowing a general depression. So far in 1952 we have not been seriously affected by these conditions and our turnover has been satisfactory, notwithstanding the resurgence of German and Japanese competition.

E.P.L.—A HARMFUL TAX

I am confident that we shall continue to expand our business in spite of the obstacles to expansion placed in our way, and in the way of other progressive companies, in the form of penal taxation, which seems almost to have been designed to encourage stagnation and to prevent progress. I refer, in particular, to the new excess profits levy. Whatever the yield of this tax and whatever its purpose in terms of party politics, this tax, even in its modified form, will do much more harm than good to the country. The report and accounts were adopted.

Chlorophyll – Cuticura

Cuticura – Chlorophyll

For many years past CHLOROPHYLL—nature's own skin healing element—has been skilfully blended with fine medicaments and rich oils in the high quality, super-fatted

CUTICURA SOAPS

CUTICURA OINTMENTS

CUTICURA SHAVING STICKS

This is one of the many important reasons why an ever-growing circle of discriminating people always insist upon these soothing, protective, fragrant Preparations for everyday care of the skin. Display these firm family favourites, and make sure that this steady all-the-year-round repeat business comes to you!



*Keep your fingers on the PULSE . . .
of the EXPORT MARKETS . . .*

by reading

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EXPORT REVIEW

OF THE BRITISH DRUG AND CHEMICAL INDUSTRIES

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BABY PANTS
COT SHEETS
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FACE CLOTHS**

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**GOOD DESIGNS and
KEEN PRICES**

WHOLESALE AND RETAIL ENQUIRIES
INVITED

Write for Samples to

CROSSKILLS OF NORWICH

**L. A. HORNER
AND SONS**

**CRUDE DRUGS
BALSAMS, GUMS
HERBS AND SEEDS**
dried, whole and powdered

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**ALOES, ARECA
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• **QUALITY • SERVICE •**

TABLETS

We
exercise the great-
est care in the manufac-
ture of proprietary lines

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and can supply either in
bulk or packed for market,
including the printing
of special labels &
cartons

**THE COOPER LABORATORY
LIMITED**

**OLD FARM ROAD
WEST DRAYTON
MIDD.**

COMPETITIVE PRICES

*In answer to
general demand*
MACLEANS
INTRODUCE
the
NEW

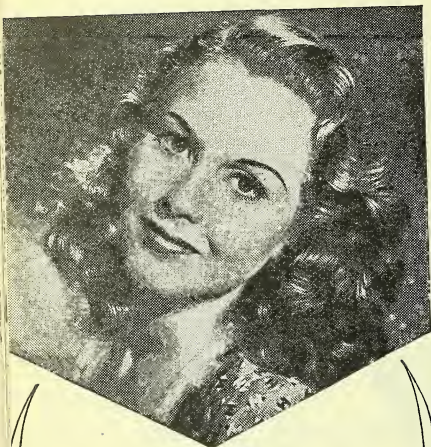
This new, small size will appeal especially to members of the family who like to have their own tube; to week-enders; and to those who buy their tooth paste at more frequent intervals.

The Standard size can cater for the whole family. Boys and girls at boarding school like this size. It is economical too, because it gives extra value.

The Extra-Large size gives remarkable value for money. It is for family use, and for those who are able to shop only at infrequent intervals.



TOOTH PASTE	Retail Selling Price incl. P. Tax	PRICE PER DOZEN			
		Standard Wholesale	Minimum Direct	Best Quantity	Display Parcel
SMALL SIZE	1/3	9/-	8/7	8/4	8/-
STANDARD SIZE	1/8	12/-	11/6	11/-	10/8
EXTRA LARGE SIZE	2/6	18/-	17/3	16/8	16/-



*"Heléna
puffs
are exquisite"*

says lovely
HAZEL COURT

THE world's finest Puffs, made by the world's leading Puff manufacturers, give you the finest range to attract customers. All sizes—60 designs—in Swansdown, Lambskin, Lambs-wool, Beaver and Velour. Ask for samples of our latest sponge bag, toilet bag and toilet holdall. Please apply to your Wholesaler for details.

HELENA PRODUCTS
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An important monograph:—

ELECTROPHYSIOLOGICAL TECHNIQUE

by C. J. Dickinson, B.A., B.Sc.
(Magdalen College, Oxford)

Price 12/6

The author describes the use of electronic methods as applied to research in Neurophysiology. Chapters are devoted to amplifying, recording and stimulating techniques used in physiology and medicine (e.g. electrocardiography, electroencephalography, etc.)

Extracts from recent reviews:—

"This laboratory handbook will be welcomed by all physiologists who are engaged in laboratory or clinical research."

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Samples sent on request
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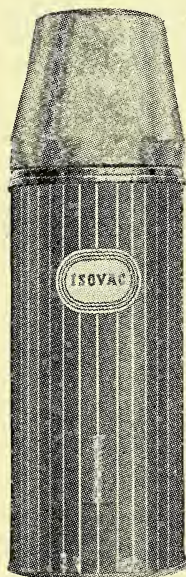
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SENSATIONAL NEWS!



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STANDARD
FLASK

VACUUM FLASKS AND

Increased production now enables us to offer our standard ISOVAC vacuum flask at 4/11 RETAIL INSTEAD OF 5/6. The name ISOVAC stands today as ever for first class British productions of quality and efficiency.

VACUUM JUGS

★ FLASKS

551 1 Pint Retail Price ~~5/6~~ 4/11

553 2 Pint Retail Price 10/-
(Assorted pale blue, pale green and cream)

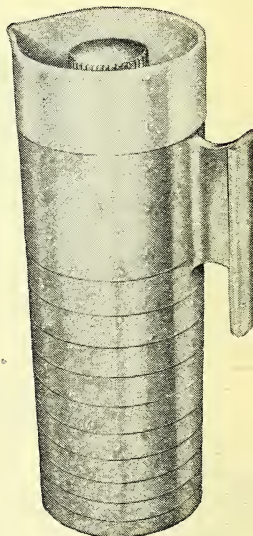
556 1 Pint Plastic Retail Price 7/6
(Assorted blue, green and grey)

★ JUG

881 1 Pint Retail Price 14/6
(Assorted blue, green and maroon)

PACKING

1 Pint Flasks 50 in Carton
2 Pint Flasks 30 in Carton
Jugs 12 in Carton



No. 881
ISOVAC JUG

Obtainable from your usual wholesale Chemist but in case of difficulty please write to:—

L. REES & CO. LTD.

31-35 WILSON STREET, LONDON, E.C.2

Telephone: Monarch 2651

Telegrams: Elreesonia, Ave, London



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50 YEARS' EXPERIENCE in the
medical world enables us to give
first class service to chemists for
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**The Silky Soft Absorbent
Tissue that is preferred**

Vanity
HANKIE TISSUES
RETAILS FROM 1/6d.

Tissues have come to stay—it's just a case of selling the BEST to make and keep customers. VANITY are produced by THE PAPER SPECIALISTS — packed attractively and come to you in display cartons worthy of your windows and counters.

POCKET PACK for 'Travel, School', etc.
(24 large size White Tissues) 4d.

BOUDOIR CARTONS (100 in White or assorted Pastel colours) or Cellophane Wrapped 100 and 180; assorted shades if required.

FREEDER BROTHERS PAPER MILLS
BRIMSDOWN, ENFIELD, MIDDLESEX

Telephone: Howard 1847 (3 lines)
Telegrams: Sylkocrepe, Enfield, Middlesex



HOW
MILLIONS
OF PEOPLE
ARE BEING
TOLD

THE

FACTS

ABOUT

JAFFAJUCE

For the first time in soft drink advertising, a manufacturer of soft drinks gives the detailed and factual story about his product — only possible because it really has something the others haven't got. This new campaign in leading newspapers will bring home to housewives everywhere the undeniable plus qualities of Jaffajuce Orange. Make certain you benefit from this newly created sales-appeal by maintaining and displaying your summer stocks.

JAFFAJUCE LTD
Sardinia House, Lincoln's Inn
Fields, London, W.C.2

















Mrs. Joan Kelly, 11 Broom Water,
Teddington, Middlesex, asks:—

**"Does it matter which
kind of Orange Squash
I buy?"**



Of course it does! Independent analysis *proves* how much more real orange there is in JAFFAJUCE. Just look at the chart below — there's the juice of nearly 4½ lbs. of sun ripened Jaffas and more than ½ lb. of sugar in every bottle of Jaffajuce — little wonder everyone who tries it asks for more and more.

INDEPENDENT ANALYST'S REPORT

Based on an independent analysis, open to inspection at our offices	JAFFAJUCE ORANGE	3 LEADING BRANDS of orange squash			
	3/9	BRAND A	BRAND B	BRAND C	Selling at 3/- or above
FRUIT JUICE CONTENT	 80-9%	 52-4%	 45-3%	 35-7%	
TOTAL SUGARS (as sucrose)					
TOTAL SOLIDS					
ADDED WATER etc.	 1oz	 7½ ozs	 12 ozs	 11 ozs	



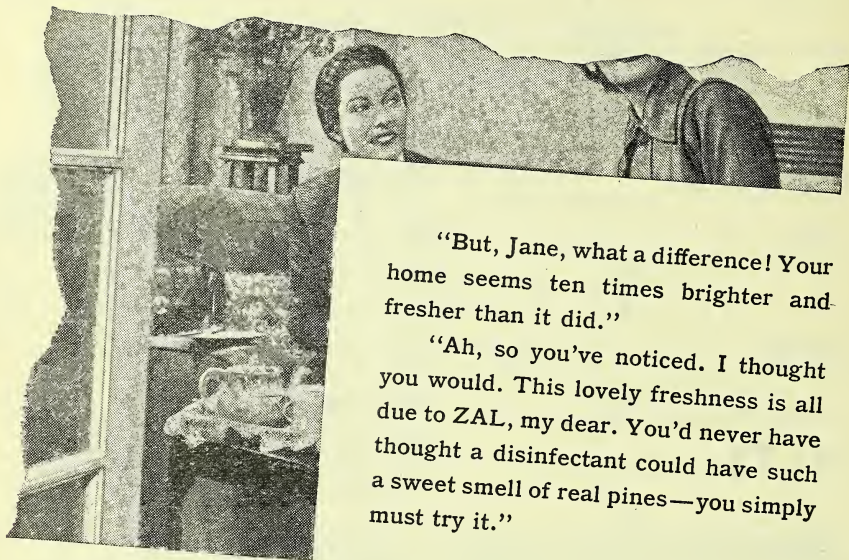
THAT'S WHY MORE AND MORE
MOTHERS ARE SAYING

"I'd rather have a

JAFFAJUCE"

ONLY 3/9 PER BOTTLE—From all Better Grocers, Chemists and Off-Licences

JAFFAJUCE LTD., SARDINIA HOUSE, LINCOLN'S INN FIELDS, LONDON, W.C.2



Remember this conversation?

YES, that conversation was printed in the big newspapers and magazines throughout the country.

And it's having immediate results. Literally thousands are getting fresh homes—getting ZAL.

It's all part of a nation-wide campaign that's sweeping ZAL to popularity. So just ask yourself —

ARE YOU MAKING THE MOST OF ZAL?



NEWTON CHAMBERS & COMPANY LTD., THORNCLIFFE, Nt. SHEFFIELD

Red Heart

NOW 1/- PER 8 oz. TIN

As from July 1st, the retail price of RED HEART will be increased from 10½d. to 1/-, with corresponding adjustments in the price to the trade. In view of ever increasing production costs it is only possible to maintain the high quality of RED HEART by taking this step.

Supplies are still insufficient to meet the demand in full, but we are doing our best to ensure fair distribution in all areas.



*— a meaty meal
in a moment!*

JOHN MORRELL & COMPANY LTD., LIVERPOOL AND LONDON

INTRODUCING **TWO NEW ADDITIONS** TO THE EVER
POPULAR, EXTENSIVE AND RELIABLE RANGE OF

"ACME" VACUUM FLASKS



"EVERYBODY'S"

1 Pt. MODEL

With bell shaped cup
RETAIL PRICE 4s. 6d.

With large cup as
illustrated
RETAIL PRICE 4s. 11d.

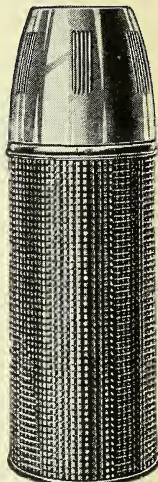
Made of corrugated rust
resisting tinplate, assor-
ted in a variety of colours
with aluminium shoulder.

"GLITTOVAC"

1 Pt. MODEL

RETAIL PRICE 5s. 11d.

Made of strong aluminium
with scintillating cross-
grained finish, translucent-
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tarnish. Mirror polished
aluminium shoulder, com-
position topped cork with
extra large Polystyrene
cup with grip ridges in a
variety of colours.



JUG

1 Pt. MODEL

RETAIL PRICE

14s. 11d.

British made
throughout in finest
plastic, polished
metal handle,
entirely rustless
construction. Wide
non-tip base. 1 pt.
size. Special
device ensuring
absolutely firm
hold of glass lining.



"STANDARD"

MODEL

**NEW RETAIL
PRICES**

1 Pt. 4s. 11d.

2 Pt. 10s. 11d.

In assorted
colours, aluminium
shoulder with
attractive frosted
silver finish.
Fitted with large
plastic cup with
grip ridges.

**PROMPT
DELIVERY**

ACME VACUUM FLASK CO.

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This advertisement is additional and later to the one on Page XLI

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227/79

its time to **DISPLAY**



SEND for
these attractive
sales aids
TO-DAY



The ideal
treatment for

SEVERE SUNBURN

RETAIL PRICE	1/3	2/3
TRADE PRICE PER DOZ.	10/-	18/-

The
CHEMIST AND DRUGGIST
JUNE 28, 1952

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classical example of
Greek architecture
458 B.C.*



*The classic medical preparation
for the treatment of ASTHMA*

*Prescribed and recommended by the Medical Profession
in Hospitals Private Practice & Government Departments*

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Telephone, CLERKENWELL, 5862 Cables, FELSOL, SMITH, LONDON.